Math Matters Now…
Especially in TK

California Kindergarten Association
31st Annual Conference 2013
Linda M. Platas Ph.D.

Handouts:

- ***Math Matters Now Presentation PowerPoint***
- ***Addition and Subtraction Situations (Common Core Progressions)***
- ***Activities***
  - ***Blank Form***
  - ***What's the Total***
  - ***Musical Shapes***

Math Matters Now… Especially in TK

California Kindergarten Association
31st Annual Conference
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Linda M. Platas Ph.D.
UC Berkeley
Heising-Simons Foundation

Outline

- Setting the stage: Mindsets
- Why early math matters
- What does it look like?
- What does it include?
- Circle of instruction
- Activities

Are you a math person?

Two mindsets

- Fixed – I either am or am not good at something.
  - *therefore*,…, those children I teach are either pretty good at something or they are not.
  - *because*,., humans just have a certain amount of brains and talent in any one topic and that is just that.

Dweck, 2006

Two mindsets

- Growth – I can change whether I am good at something or not.
  - *therefore*,,,, those children I teach can become better at anything.
  - *because*,,, humans have the capacity to expand their knowledge and abilities.

Dweck, 2006

So why might

"*Are you a math person?*"

be the wrong question?

Why Early Math Matters

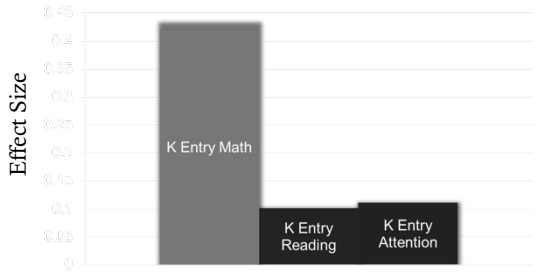
Why Early Math Matters: Duncan et al, 2007

In 2007, Duncan et al. examined 6 longitudinal data sets to look at the links between school readiness and later academic achievement.

- Across all, the strongest predictors of later achievement were school-entry (1) math, (2) reading, and (3) attention skills.

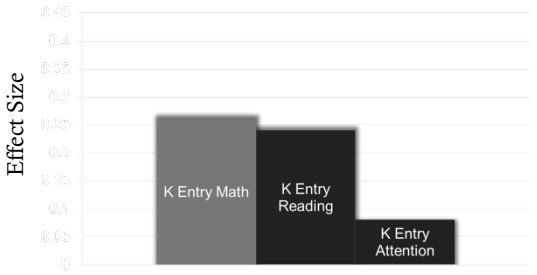
Why Early Math Matters: Duncan et al, 2007

Predictors of Math Achievement at 3rd and 5th Grades



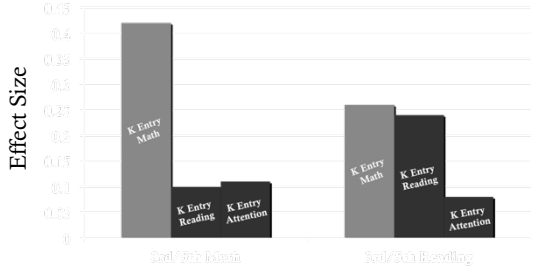
Why Early Math Matters: Duncan et al, 2007

Predictors of Reading Achievement at 3rd and 5th Grades



Why Early Math Matters: Duncan et al, 2007

Predictors of Math and Reading Achievement at 3rd and 5th Grades



What Does Quality Support of Early Mathematics Look Like?

What does it look like?

- **Flexible**…thinking on your feet is really important…
  -
    another
  - Something might not work at one point in time, but it will for another
  - Being able to change activities to adapt to children's place in development (and the day) is essential!

What Does Quality Support of Early Mathematics Include: The Standards

Preschool Foundations Number Sense	Kindergarten CCSS Counting and Cardinality
Children expand their understanding of numbers and quantities in their everyday environment PK. N.S. 1.1 Recite numbers in order to twenty with increasing accuracy	Know number names and the count sequence K. CC. 1 Count to 100 by ones and by tens K. CC. 2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1)

Preschool Foundations Number Sense	Kindergarten CCSS Counting and Cardinality
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Vocabulary: *count, number words (i.e., one, two, three, etc. from 1-100), count by, count from, number, next number, how did you figure that out?*

Preschool Foundations Number Sense	Kindergarten CCSS Counting and Cardinality
Children expand their understanding of numbers and quantities in their everyday environment PK. N.S. 1.1 Recite numbers in order to twenty with increasing accuracy	Know number names and the count sequence K. CC. 1 Count to 100 by ones and by tens K. CC. 2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1)
What it looks like: •While playing hide-and-seek, Ezra counts to twenty before looking for the other children. •When asked to count as high as she can, Melia counts to 50. •When asked how old he is, Kenji answers, "I'm five, and then I'll be six, seven, eight, nine, ten! •Holly counts to 100 by tens when asked.	

Preschool Foundations Number Sense	Kindergarten CCSS Counting and Cardinality
Children expand their understanding of numbers and quantities in their everyday environment PK. N.S. 1.1 Recite numbers in order to twenty with increasing accuracy	Know number names and the count sequence K. CC. 1 Count to 100 by ones and by tens K. CC. 2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1)
Big ideas: •Students learn to recite numbers before they can apply one-to-one concepts to counting objects or understand cardinality. •Encourage students to slow down as they count, and start them in the middle of the counting sequence to encourage conceptual understanding of the order of numbers.	

Preschool Foundations Number Sense	Kindergarten CCSS Counting and Cardinality
Children expand their understanding of numbers and quantities in their everyday environment PK. N.S. 1.1 Recite numbers in order to twenty with increasing accuracy	Know number names and the count sequence K. CC. 1 Count to 100 by ones and by tens K. CC. 2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1)
Instructional Issues: •Students may learn a short sequence of numbers (fourfivesix) and not understand that they are separate numbers. •Numbers 11 through 15 may be difficult for students to learn as they do not follow the pattern (number followed by –teen) of 16 through 19. •Use discussions about how these numbers are kind of funny – calling attention to the irregularity of these number names may make it easier for students to remember. •Saying the counting numbers is sometimes referred to as verbal counting or rote counting and does not necessarily denote an understanding of object counting with one-to-one correspondence.	

Preschool Foundations Number Sense	Kindergarten CCSS Counting and Cardinality
Children expand their understanding of numbers and quantities in their everyday environment PK. N.S. 1.1 Recite numbers in order to twenty with increasing accuracy	Know number names and the count sequence K. CC. 1 Count to 100 by ones and by tens K. CC. 2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1)
Activities: Using a puppet (George), tell the students a story about how George has a hard time remembering how to count. Tell them that you would like them to help George figure out when his counting isn't right. Ask the students to raise their hands when they hear George make a mistake and to remember George's counting mistake. In George's voice, count to ten, skipping or repeating one number in the sequence. Call on the students who raised their hands to describe George's mistake. Ask questions to make sure that students thoroughly describe the mistake and how George can fix his mistake.	

Preschool Foundations Number Sense	Kindergarten CCSS Counting and Cardinality
Children expand their understanding of number relationships and operations in their everyday environment. PK. N.S. 2.1 Compare, by counting or matching, two groups of up to five objects and communicate, "more," "same as," or "fewer" (or "less").	Compare numbers K. CC. 6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. K. CC. 7 Compare two numbers between 1 and 10 represented as written numerals
Vocabulary:	
What it looks like:	
Big ideas:	
Instructional issues:	
Activities:	

Preschool Foundations Number Sense	Kindergarten CCSS Operations and Algebraic Thinking
Children expand their understanding of number relationships and operations in their everyday environment. PK N.S. 2.2 Understand that adding one or taking away one changes the number in a small group of objects by exactly one. PK. N.S. 2.3 Understand that putting two groups of objects together will make a bigger group and that a group of objects can be taken apart into smaller groups PK N.S. 2.4 Solve simple addition and subtraction problems with a small number of objects (sums up to 10), usually by counting.	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. K. OA. 1 Represent addition and subtraction problems with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. K. OA. 2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Preschool Foundations Number Sense	Kindergarten CCSS Operations and Algebraic Thinking
Children expand their understanding of number relationships and operations in their everyday environment.	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
Instructional Issues: •Students frequently need to figure out problem-solving strategies on their own, not through direct instruction. Students may be more comfortable with a particular strategy versus another. In time, they may learn new strategies. Provide frequent opportunities to engage in addition/subtraction activities. •Initially working within addends less than five encourages in-depth understanding of addition and subtraction concepts. •Encourage problem solving through the use of fingers, drawings, and manipulatives (the use of fingers is very appropriate). Some arithmetic problems are more difficult than others (see Addition and Subtraction Situations in the CCSS Progressions). •Students should be provided developmentally appropriate opportunities to use equations that feature the unknown(s) in non-stereotypical places. This emphasizes the meaning of the equal sign (e.g., ? = 5 + 5; ? + 3 = ? + 3) .	

Preschool Foundations Measurement	Kindergarten CCSS Measurement and Data
Children expand their understanding of comparing, ordering, and measuring objects. PK. M. 1.1 Compare two objects by length, weight, or capacity directly (e.g., putting objects side by side) or indirectly (e.g., using a third object) PK. M. 1.2 Order four or more objects by size. PK. M. 1.3 Measure length using multiple duplicates of the same-size concrete units laid end-to-end.	Describe and compare measurable attributes K. MD. 1 Describe measureable attributes of objects, such as length or weight. Describe several measureable attributes of a single object. K. MD. 2 Directly compare two objects with a measureable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. For example, directly compare the heights of two children and describe on child as taller/shorter.

Preschool Foundations Measurement	Kindergarten CCSS Measurement and Data
Children expand their understanding of comparing, ordering, and measuring objects.	Describe and compare measurable attributes
Instructional Issues: •Students may not understand that in order to compare the length or height of objects, they must all have the same starting point (e.g., in measuring the height of four objects, they are all placed upright on a table). Help students develop this ability. For vertical measurements, use the table or floor as the starting point. For horizontal measurement, mark the starting point with tape, drawing a line, or a straight stick. •When students are measuring with non-standard units of measure, encourage them to use the same unit to measure the item.	

Preschool Foundations Algebra and Functions	Kindergarten CCSS Measurement and Data
Children expand their understanding of sorting and classifying objects in their everyday environment PK. AF. 1.1 Sort and classify objects by one or more attributes, into two or more groups, with increasing accuracy (e.g., may sort first by one attribute and then by another attribute).	Classify objects and count the number of objects in each category. K. MD. 3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

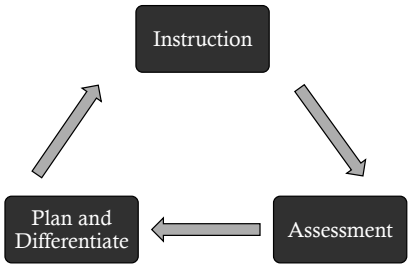
Preschool Foundations Algebra and Functions	Kindergarten CCSS Measurement and Data
Children expand their understanding of sorting and classifying objects in their everyday environment	Classify objects and count the number of objects in each category.
Instructional Issues: •Being able to sort a group of objects by more than one attribute is an important ability. •Help students develop this ability by encouraging this activity in a variety of settings (not just with manipulatives). If you go on a walk, ask the students to think about how many ways trees could be grouped (shape of leaves, color of trunk, type of fruit, etc.). While eating lunch ask how many ways vegetables can be grouped (color, soft/hard, etc.).	

Preschool Foundations Geometry	Kindergarten CCSS Geometry
Children identify and use a variety of shapes in their everyday environment. PK. G. 1.1 Identify, describe and construct a variety of different shapes, including variations of a circle triangle rectangle, square, and other shapes. PK. G. 1.2 Combine different shapes to create a picture or design PK. G. 1.3 Identify positions of objects and people in space, including in/on/under, up/down, inside/outside, beside/between, and in front/behind	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres). K. G. 1 Describe objects in the environment using names of shapes and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to. K. G. 2 Correctly name shapes regardless of their orientations or size. K. G. 3 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid"). Analyze compare, create, and compose shapes K. G. 4. Analyze and compare two-and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/corners" and other attributes (e.g., having sides of equal length). K.G. 5 Model shapes in the world by building shapes from components (e.g. sticks and clay balls) and drawing shapes. K. G. 6 Compose simple shapes to form larger shapes. For example "Can you join these two triangles with full sides touching to make a triangle?

Preschool Foundations Geometry	Kindergarten CCSS Geometry
Children identify and use a variety of shapes in their everyday environment.	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres). Analyze compare, create, and compose shapes
Instructional Issues: •Shapes should be provided in all orientations and all permutations (long rectangles, triangles with a vertex pointing down, isosceles triangles, scalene triangles). •Help students to understand the difference between shape-like objects and actual representations of shapes (e.g., an apple has round characteristics, but it is not a sphere).	

Preschool Foundations Mathematical Reasoning	Kindergarten CCSS Mathematical Practices
Children expand the use of mathematical thinking to solve problems that arise in their environments	Make sense of problems and persevere in solving them.
	Reason abstractly and quantitatively.
	Construct viable arguments and critique the reasoning of others.
	Model with mathematics.
	Use appropriate tools strategically.
	Attend to precision.
	Look for and make use of structure.
	Look for and express regularity in repeated reasoning.

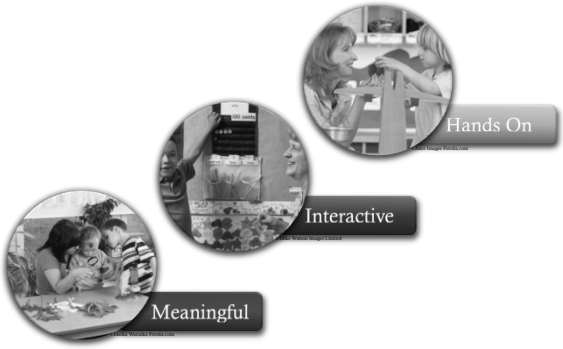
Circle of Instruction



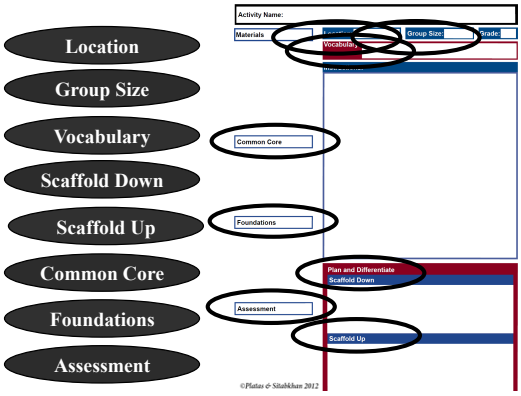
Instruction

Assessment

Plan ⇨ Differentiated Instruction



Activities



Activity Name: **What's The Total?**

Materials

- 2 dice with numbers or dots from 1-6
- Crayons (1 for each student)
- One strip of paper with numbers from 2-12 for each child

2	3	4	5	6	7	8	9	10	11	12

Common Core

K.CC. 6 Compare numbers
K. OA. 1 Represent addition and subtraction with objects

Foundations

Location: Inside/Outside | Group Size: 1-4 | Grade: TK

Vocabulary: *How many? add, subtract, take away*

Instructions:

1. Setup: You can play this game on any flat surface (table/floor/playground). Place dice in the middle and provide each student with the numeral strip and a crayon.
2. Ask a student to roll both dice.
3. Ask the student to add up the total amount of both the dice. "How many pips are there all together?"
4. Ask all student to find that sum/number on their strip of paper and cross it out (e.g., if a four and two are rolled, the numeral 6 would be crossed out).
5. The next student rolls the dice and the students keeps playing until all the numbers are crossed out.

Foundations

NS 2.4 Solve simple addition and subtraction problems with a small number of objects (sums up to 10), usually by counting

Assessment

DRDP-SR
Measure 24: Number sense of quantity and counting ("How many pips are there all together?")

Measure 25: Number sense of mathematical operations ("How many is 3 pips plus 4 pips?")

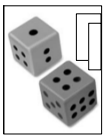
Plan and Differentiate

Scaffold Down

- Use dice or a spinner with smaller numbers (change numerals on strip appropriately).
- Pair up more knowledgeable students with less knowledgeable students and have them use the same numeral strip, with the less knowledgeable student croseing the numerals off

Scaffold Up

- Use dice or a spinner with higher numbers
- Have each student cross off only those numerals that s/he has rolled (longer game). The game is over when everyone has crossed off all of their numerals (or at a specified time).



2	3	4	5	6	7	8	9	10	11	12

Activity Name: What's The Total?
Materials
Common Core
Foundations
Location: Inside/Outside | Group Size: 1-4 | Grade: TK
Vocabulary: How many? add, subtract, take away
Instructions:
Plan and Differentiate
Scaffold Down
Scaffold Up
Assessment
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Musical Shapes

Materials

- Playground
- Large Chalk (can use tape if inside on carpet or floor)
- CD/Tape Player
- Music CD/Tape

Common Core

K.CC.4 Count to tell the number of objects

K.G.4 Analyze, compare, create and compose shapes

Foundations

NS1.1 Count up to 10 objects

NS1.5 Use number name of last object counted to answer question, "How many?"

G.1.1 Identify, describe and construct a variety of different shapes

Assessment

DRDP-PS Measure 32: Number sense of quantity and counting

DRDP-PS Measure 36: Shapes

Correct number of sides on a shape

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Location: Inside/Outside | Group Size: 6- Whole | Grade: TK

Vocabulary: *triangle, rectangle, pentagon, hexagons, septa/heptagon, octagon, sides, angles, vertices/corners*

Instructions:

1. Setup: This game is a rendition of Musical Chairs, except there are no chairs and no losers!
   - Count the number of children in your class.
   - While on the playground, draw shapes whose sides total the number of children in your class (if you have 15 children, you could draw five triangles, or three pentagons, or an octagon and a septa/heptagon... you get the picture). These shapes should be big enough to hold the same number of standing children as there ares sides without undue crowding. Try to draw polygons with equilateral sides (sides of the same length).
2. Provide instruction to the children:
   - Walk around the shapes with the children and have them name the shapes and count the sides
   - Before you leave each shape, ask children to count the sides and put the same number of children inside the shape. Make sure children understand this part: # of sides = # of children.
   - Explain that when you start the music, children should begin walking around the shapes without going inside them. When the music stops, the children should fill the shapes - but only with the same number of children as sides.
3. Start the music (best to start with a slow song). Play for about one minute. When you stop the music, remind the children to match the number of shape sides with the number of children. Initially, the children will need a lot of help organizing themselves into the shapes appropriately. Starting with simpler shapes or identical shapes (e.g., all triangles) may help.
4. Repeat game as desired.

Plan and Differentiate

Scaffold Down

- Tell children the number of sides of the shape.
- Tell children to stand on the vertices/corners of each shape.
- Write the number of sides in the shape inside the shape.

Scaffold Up

- Have children calculate which shapes and how many are needed to hold every child in the class.

Handouts

- PowerPoint
- Foundations/CCSS Tables
  - Foundations/CCSS Standards
  - Vocabulary
  - What it looks like
  - Big ideas
  - Instructional issues
  - Activities
- Addition and subtraction situations by grade level (from Common Core Progressions)
- Activities
  - Blank Form
  - What's the Total
  - Musical Shapes

Questions?

References

- Clements, D., & Sarama, J. (2009). *Learning and teaching early math: The learning trajectories approach*. New York, NY: Routledge.
- Duncan, G. J., Claessens, A., Huston, A. C., Pagani, L. S., Engel, M., Sexton, H., . . . Japel, C. (2007). School readiness and later achievement. *Developmental Psychology, 43*(6), 1428-1446.
- Dweck, Carol S. (2006). *Mindset*. New York, NY: Ballentine Books
- Fischer, J.-P. (1992). Subitizing: The dicontinuity after three. In J. Bideaud, C. Meljac & J.-P. Fischer (Eds.), Pathways to number: children's developing numerical abilities (pp. 191-227). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Gelman, R., & Gallistel, C. R. (1978). The child's understanding of number. Cambridge, MA: Harvard, University Press.
- National Head Start Family Literacy Center. (2010). High Five: Mathematize! Head Start/Early Head Start Education Managers' Math Manual. Rohnert Park, CA: National Head Start Family Literacy Center, Sonoma State University
- Romano, E., Kohen, D., Babchishin, L., & Pagani, L. S. (2010). School readiness and later achievement: replication and extension study using a nation-wide Canadian survey. *Developmental Psychology, 46*, 995-1007
- Starkey, P., & Cooper, R. G. (1980). Perception of numbers by human infants. Science, 210(4473), 1033-1035.
- Website on *Mindset*: http://mindsetonline.com

Table 1: 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 sitting 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[1]	Addend Unknown[2]
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? *"How many fewer?" version.* Lucy has A apples. Julie has C apples. How many fewer apples does Lucy have than Julie? $A + \square = C$ $C - A = \square$	*"More" version suggests operation.* Julie has B more apples than Lucy. Lucy has A apples. How many apples does Julie have? *"Fewer" version suggests wrong operation.* Lucy has B fewer apples than Julie. Lucy has A apples. How many apples does Julie have? $A + B = \square$	*"Fewer" version suggests operation.* Lucy has B fewer apples than Julie. Julie has C apples. How many apples does Lucy have? *"More" suggests wrong operation.* Julie has B more apples than Lucy. Julie has C apples. How many apples does Lucy have? $C - B = \square$ $\square + B = C$

In each type (shown as a row), any one of the three quantities in the situation can be unknown, leading to the subtypes shown in each cell of the table. The table also shows some important language variants which, while mathematically the same, require separate attention. Other descriptions of the situations may use somewhat different names. Adapted from CCSS, p. 88, which is based on *Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity*, National Research Council, 2009, pp. 32–33.

[1] This can be used to show all decompositions of a given number, especially important for numbers within 10. Equations with totals on the left help children understand that = does not always mean "makes" or "results in" but always means "is the same number as." Such problems are not a problem subtype with one unknown, as is the Addend Unknown subtype to the right. These problems are a productive variation with two unknowns that give experience with finding all of the decompositions of a number and reflecting on the patterns involved.

[2] Either addend can be unknown; both variations should be included.

Activity Name:

Materials

Location:

Group Size:

Grade:

Vocabulary:

Instructions:

Common Core

Foundations

Plan and Differentiate

Scaffold Down

Assessment

Scaffold Up

What's The Total?

Materials

- 2 dice with numbers or dots from 1-6
- Crayons (1 for each student)
- One strip of paper with numbers from 2-12 for each student

2	3	4	5	6	7	8	9	10	11	12

Common Core

K.OA. 1 Represent addition and subtraction with objects

Foundations

NS 2.4 Solve simple addition and subtraction problems with a small number of objects (sums up to 10), usually by counting

Assessment

DRDP-SR
Measure 24: Number sense of quantity and counting ("How many pips are there all together?")

Measure 25: Number sense of mathematical operations ("How many is 3 pips plus 4 pips?")

Location: Inside/Outside | **Group Size: 1-4** | **Grade: TK**

Vocabulary:
How many; add, subtract, take away

Instructions:

1. Setup: You can play this game on any flat surface (table/floor/playground). Place dice in the middle and provide each student with a numeral strip and a crayon.
2. Ask a student to roll both dice.
3. Ask a student to add up the total amount of both the dice, "How many pips are there all together?"
4. Ask all children to find that sum/number on their strip of paper, and cross it out (e.g., if a four and two are rolled, the numeral 6 would be crossed out).
5. The next student rolls the dice and the students keep playing until all of the numbers are crossed out.

Plan and Differentiate

Scaffold Down

- Use dice or a spinner with smaller numbers (change numerals on strip appropriately).
- Pair up more knowledgeable students with less knowledgeable students and have them use the same numeral strip, with the less knowledgeable student crossing the numerals off.

Scaffold Up

- Usse dice or a spinner with higher numbers.
- Have each student cross off only those numerals that s/he has rolled (longer game). The game is over when everyone has crossed off all of their numerals (or at a specificed time).

Musical Shapes

Materials

- Playground
- Large Chalk (can use tape if inside on carpet or floor)
- CD/Tape Player
- Music CD/Tape

Common Core

K.CC.4 Count to tell the number of objects

K.G.4 Analyze, compare, create and compose shapes

Foundations

NS.1.4 Count up to 10 objects

NS.1.5 Understand, when counting that the number name of the last object counted represents the total number of objects in the group.

G.1.1 Identify, describe and construct a variety of different shapes

Assessment

DRDP-SR Measure 24: Number sense of quantity and counting ("How many sides does your shape have?").

DRDP-SR Measure 27: Shapes ("What is the name of your shape?").

Location: Inside/Outside | **Group Size: 6- Whole** | **Grade: TK**

Vocabulary: ***triangle, retangle, pentagon, hexagons, septa/heptagon, octagon, sides, angles, vertices/corners***

Instructions:

1. Setup: This game is a rendition of Musical Chairs, except there are no chairs and no losers!
   - Count the number of children in your class.
   - While on the playground, draw shapes whose sides total the number of children in your class (if you have 15 children, you could draw five triangles, or three pentagons, or an octagon and a septa/heptagon... you get the picture). These shapes should be big enough to hold the same number of standing children as there ares sides without undue crowding. Try to draw polygons with equilateral sides (sides of the same length).
2. Provide instructions to the children:
   - Walk around the shapes with the children and have them name the shapes and count the sides
   - Before you leave each shape, ask children to count the sides and put the same number of children inside the shape. Make sure children understand this part: # of sides = # of children.
   - Explain that when you start the music, children should begin walking around the shapes without going inside them. When the music stops, the children should fill the shapes - but only with the same number of children as sides.
3. Start the music (best to start with a slow song). Play for about one minute. When you stop the music, remind the children to match the number of shape sides with the number of children. Initially, the children will need a lot of help organizing themselves into the shapes appropriately. Starting with simpler shapes or identical shapes (e.g., all triangles) may help.
4. Repeat game as desired.

Plan and Differentiate

Scaffold Down

- Tell children the number of sides of the shape.
- Tell children to stand on the vertices/corners of each shape.
- Write the number of sides in the shape inside the shape.

Scaffold Up

- Have children calculate which shapes and how many are needed to hold every child in the class.