DLM® Webinar
Composing and Decomposing & Comparing Number

Composition and Decomposition of Shapes and Area

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Today's Plan

- Composing and Decomposing
  - Number
  - Shapes and Area
- Initial and Distal Precursors
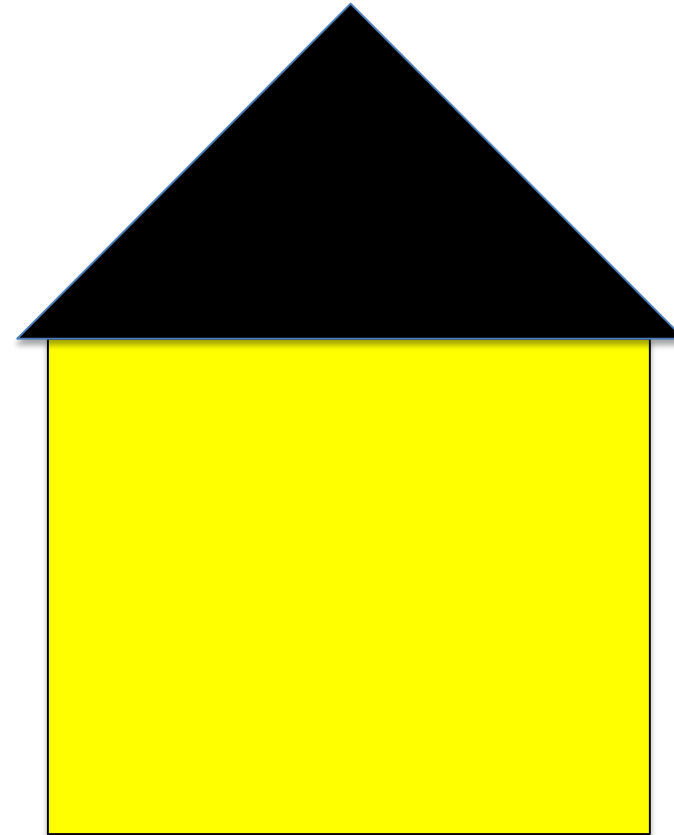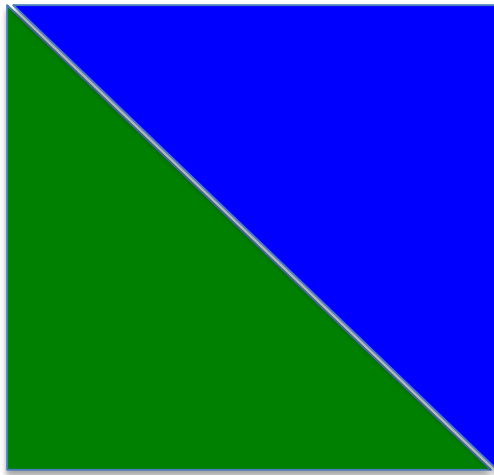- Questions & Answers

Composing and Decomposing

Counting

One-to-one Correspondence

Compose

Decompose

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Composition And Decomposition Of Shapes And Area

Grade	EE	Description
3	3.OA.4	Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.
4	4.MD.3	Determine the area of a square or rectangle by counting units of measure (unit squares).

Unpacked Essential Elements

Information can be found on the following webpage:

https://www.dropbox.com/sh/3t44xd9dqyh3c5b/AAAA_VqHwUoiKBLH5eGgst7oa?dl=0

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Third Grade Mathematics: Operations and Algebraic Thinking

Grade-Level Standards	DLM Essential Element	Unpacked
Represent and solve problems involving multiplication and division		
3.OA.1. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.	**EE.3.OA.1-2.** Use repeated addition to find the total number of objects and determine the sum.	**Concept:** Multiplication can be represented in different ways (e.g., repeated addition of equal groups, skip counting, objects in an array, area of a rectangle).
3.OA.2. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.		**Skills:** Counts equal groups by using repeated addition (e.g., 2+2+2+2 = 8); add and subtract numbers when result is unknown (e.g., 3 + 2 = __)
3.OA.3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	**Not applicable.** See EE.3.OA.1 and EE.5.NBT.5.	**Big Idea:** Addition and subtraction are used to represent and solve many different kinds of problems.
3.OA.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = _ ÷ 3, 6 × 6 = ?	**EE.3.OA.4.** Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.	**Essential Questions:** How do I use addition and subtraction to solve problems? How can I keep track of the groups I have or have not counted? How do addition and subtraction problems relate to each other? How do I know which mathematical operation (+, -) to use?

Professional Development Modules Supporting Essential Elements

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | AA | AB | AC | AD | AE | AF | AG |

| Grade | EE | Description | Foundational Modules | | | | | | | | Modules Organized by Claims and Conceptual Areas |

Grade	EE	Description	DLM Claims and Conceptual Areas	DLM Core Vocabulary and Communication	DLM Essential Elements	IEPs linked to the DLM Essential Elements	Standards of Mathematics Practice	Symbols	Universal Design for Learning	Who are the students with significant disabilities?	Algebraic Thinking	Basic Geometric Shapes and their Attributes	Calculate Accurately with Addition	Calculate Accurately with Division	Calculate Accurately with Multiplication	Calculate Accurately with Subtraction	Composing, Decomposing, and Comparing Numbers	Composing and Decomposing Shapes and Area	Counting and Cardinality	Exponents and Probability	Forms of Number	Fraction Concepts and Models PART 1	Fraction Concepts and Models PART 2	Functions and Rates	Measuring and Comparing Lengths	Organizing and Using Data to Answer Questions	Place Value	Properties of Lines and Angles	Time and Money	Perimeter and Volume and Mass	Patterns and Sequences	The Power of Ten-Frames
HS	G-GPE.7	Find perimeter and area of squares and rectangles to solve real-world problems.	☐	☐	☐		☐	☐										☐							☐						☐	

http://dlmpd.com

Where is it?

- Go to **dynamiclearningmaps.org** website
  - Select **States** (top of the page)
    - Find your **state**
      - Select **Resources for Educators and District Staff**
      - Select **Educator Resource Page for ELA and Math**
      - Scroll down and select **Professional Development Modules Supporting Essential Elements.**

Initial and Distal Precursor Doc

This resources provides teachers with enhanced descriptions of the Initial and Distal Precursors for the most frequently used Essential Elements.

https://www.dlmpd.com/wp-content/uploads/2017/04/Initial-Distal-Precursor-Extended-Descriptions-Math-1.pdf

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Initial Precursor

Students at this level have not yet developed intentional and/or symbolic means of communication. They may be learning to attend to people, objects, or events. They are unlikely to have any traditional academic skills such as number recognition or counting skills.

Distal Precursor

- Students at this level have some means of communication, but cannot always meet all of their communication needs using speech, sign, or symbols. They are learning to make choices and answer basic wh-questions. They are able to attend throughout activities and can recognize familiar people, objects, places, and events. Students at this level are starting to acquire traditional academic skills.

Initial Precursor & Distal Precursor Document

Essential Element MiniMap	DLM Essential Element	Target Linkage Level	Proximal Linkage Level	Distal Precursor Linkage Level	Initial Precursor Linkage Level	How is the distal precursor related to the target?	How is the initial precursor related to the target?
M.3.OA.4	M.3.OA.4 Solve addition and subtraction problems when result is unknown, limited to operands and results within 20	Determine the unknown in a subtraction equation Determine the unknown in an addition equation	Recognize the addition sign Explain the function of the addition sign Represent addition with equations Recognize the subtraction sign Explain the function of the minus sign Represent subtraction with equations Recognize the equal sign Explain the function of the equal sign	Combine sets Demonstrate the concept of addition Partition sets Demonstrate the concept of subtraction	Recognize separateness Recognize set	Distal Precursor: As students begin to understand labeling and counting small sets (1-4), they begin to use the number sequence. Students become more adept at tracking individual objects and are able to compare (e.g., more or less) two groups based on the overall area or discrete number. Again, teachers can work on this skill using a variety of sets, labeling and counting the set, and moving items in and out of the set, labeling and counting the set again.. NOTE: Teachers can work on the Distal Precursor level using the sets of numbers that students working at the Target level are adding and subtracting.	Initial Precursor: Understanding how to add and subtract requires a student to be able to recognize that two or more sets or groups of objects exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one bear, three blocks), count the items, label the set again, and encourage students to use numerals to label and count the separate sets. NOTE: Teachers can work on the Initial Precursor level using the sets of numbers that students working at the Target level are adding and subtracting.
M.EE.3.G.2	M.3.G.2 Recognize that shapes can be partitioned into equal areas	Partition any shape into equal parts	Model equal part Partition circle into 2 equal parts Partition circle into 3 equal parts Partition circle into 4 equal parts Partition a rectangle into rows and columns Partition rectangle into 2 equal parts	Partition shapes	Recognize unit Recognize wholeness Recognize parts of a given whole or a unit	Distal Precursor: As students begin to recognize whole objects or shapes, they can move toward recognizing basic objects in whole and part forms. Teachers can work on this understanding by giving students an opportunity to observe, feel, or otherwise interact with objects and shapes in their whole and part forms. The general goal is to explore the differences between whole units or objects and parts of units or objects. As students explore shapes, teachers should label the shapes and describe them as "whole" or "part". NOTE: Teachers can work on the Distal Precursor skills using everyday objects and/or using the shapes that students working at the Target level are partitioning into equal parts.	Initial Precursor: Being able to partition shapes requires a student to first recognize a unit or whole objects and shapes. Teachers can work on this understanding by giving students an opportunity to observe, feel, or otherwise interact with objects and shapes in their whole forms. As students explore shapes, teachers should label the shapes and describe them as a whole shape/object. NOTE: Teachers can work on the Initial Precursor skills using everyday objects and/or using the shapes that students working at the Target level are partitioning into equal parts.
M.EE.3.MD.1	M.3.MD.1 Tell time to the hour on a digital clock	Tell time to the hour	Recognize the hour on a digital clock Recognize the minute on a digital clock		Attend Recognize different		Initial Precursor: In order to understand the passage of time and ultimately to tell time and understand its relevance, students begin by learning to focus their attention and recognize when things in their environment change or are different. For example, providing consistent and responsive interactions (like being fed when hungry

Mini map

Description

M.3.G.2 Recognize that shapes can be partitioned into equal areas

Target: Partition any shape into equal parts

Proximal Precursor: Model equal part

Partition circle into 2 equal parts

Partition circle into 3 equal parts

Partition circle into 4 equal parts

Partition a rectangle into rows and columns

Partition rectangle into 2 equal parts

Distal Precursor: Partition shapes

Initial Precursor: Recognize unit

Recognize wholeness

Recognize parts of a given whole or a unit

Initial Precursor

- Explore and manipulate the objects in their environment
- Compare new objects to familiar ones

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Exploring

Attribute tray

Position Board

https://www.tsbvi.edu/fall-winter-2015/4576-active-learning-space-an-active-collaboration

https://cviteacher.wordpress.com/2014/04/

Part and Whole

Take Apart/Put Together & Shapes
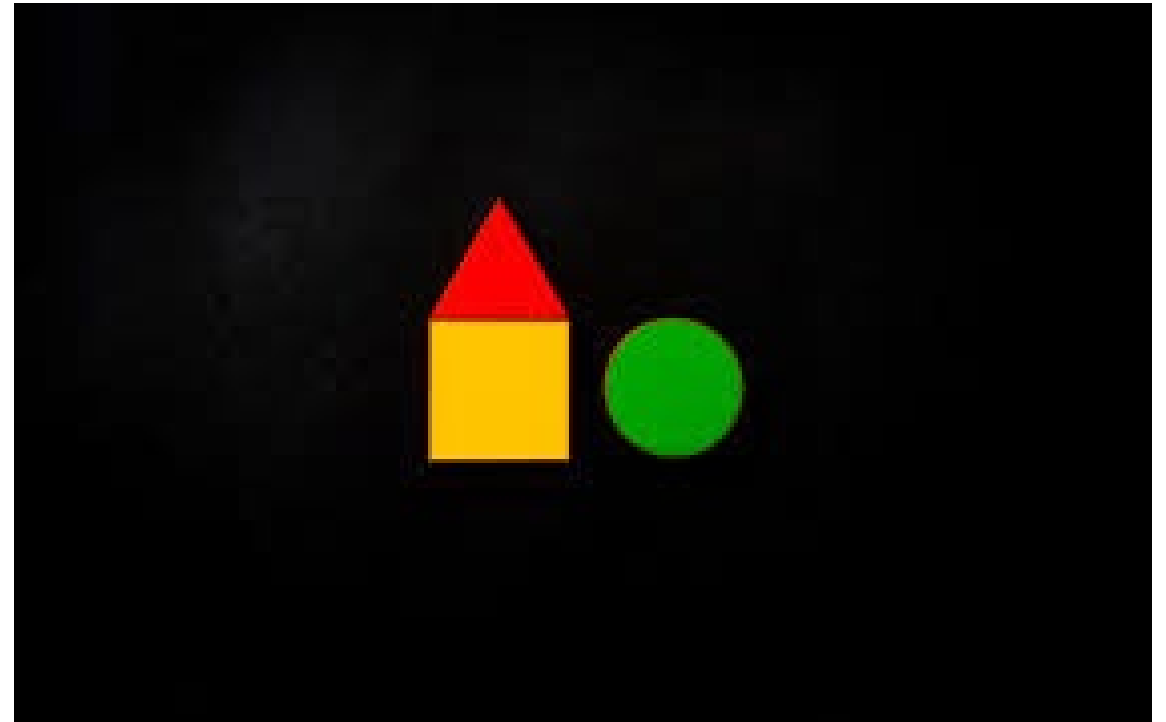
Distal Precursor

- The student partitions or decomposes objects.

- Be sure they have access to a symbolic (verbal, sign, or symbol) form of describing what they have done.
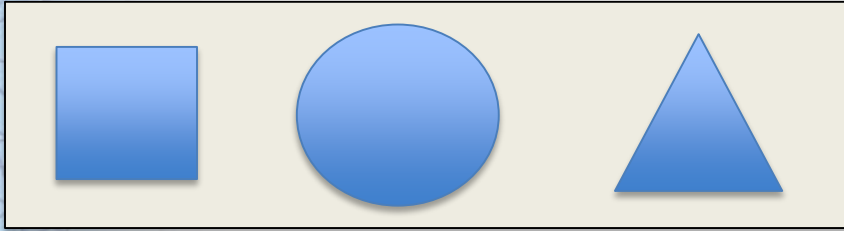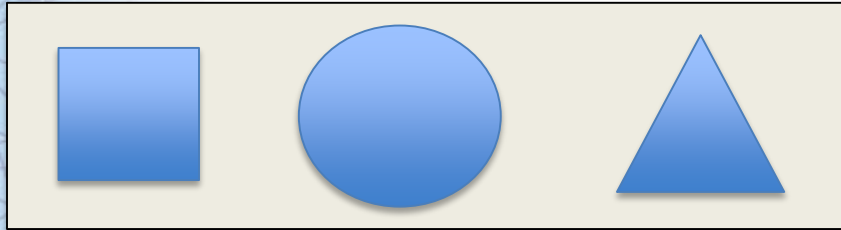
- Core Vocabulary

  https://www.dlmpd.com/dlm-core-vocabulary/

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Activity: What shape do we make?

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Composing & Decomposing with Number

- ## M.EE.N-CN.2.b
  - Solve real-world problems involving addition and subtraction of decimals and whole numbers, using models when needed

Initial Precursor

- Recognize separateness
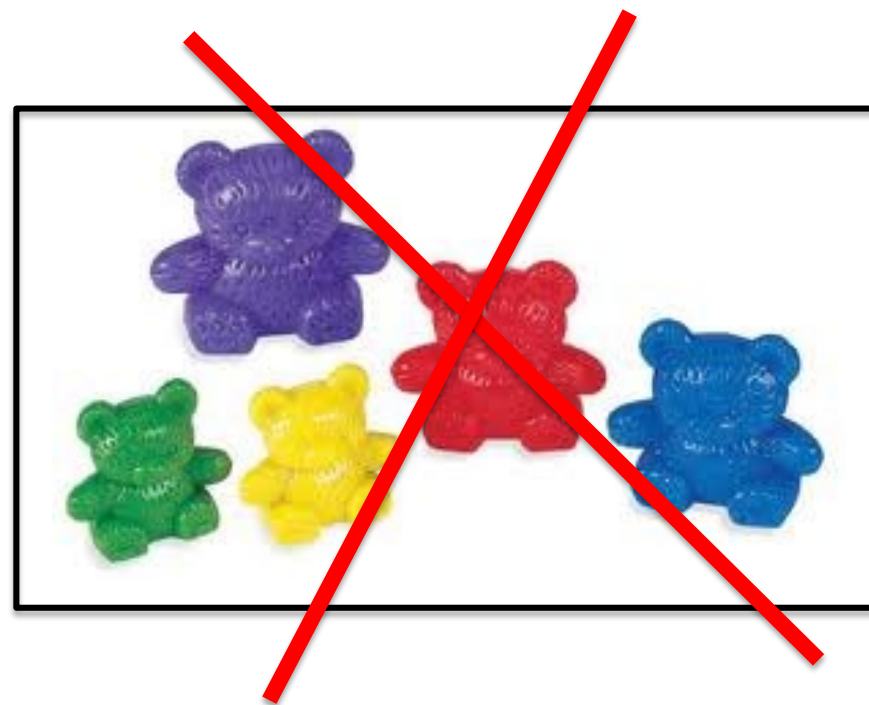- Recognize set

Identify and Count Everything

2 CD's

4 Cups
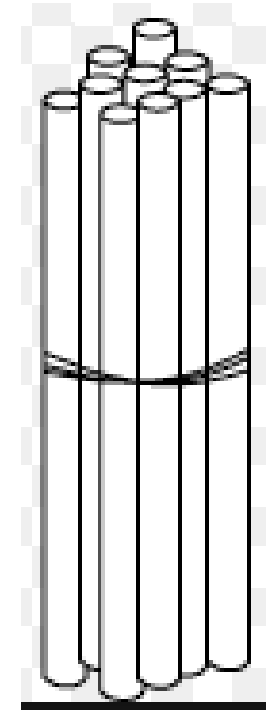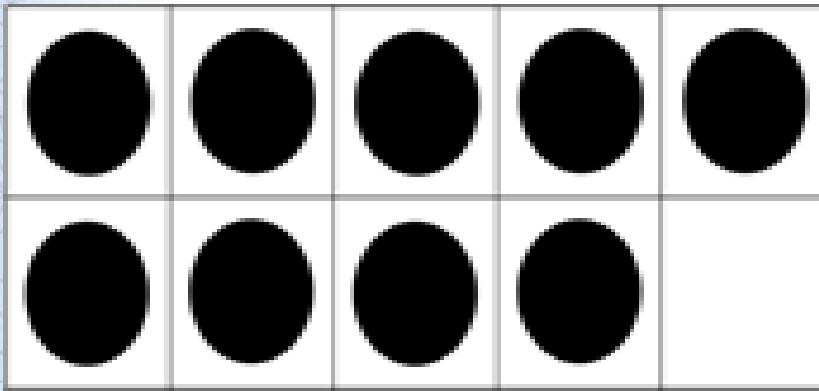

5 Animals

25

Separateness

Separateness

Distal Precursor

- Recognize a unit
- Explain ten as a composition of ten ones
- Explain place value for ones and tens

Models
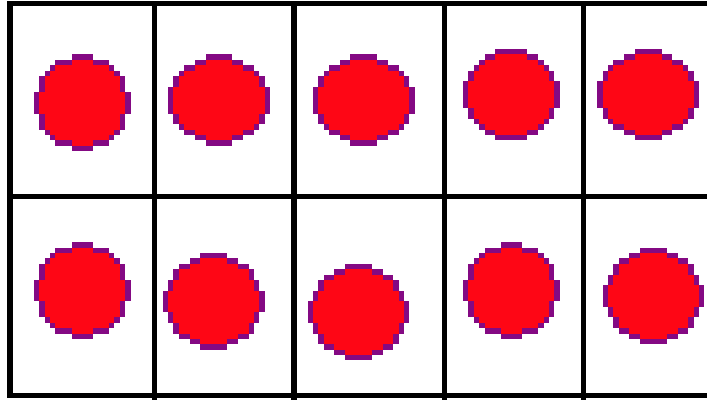
1
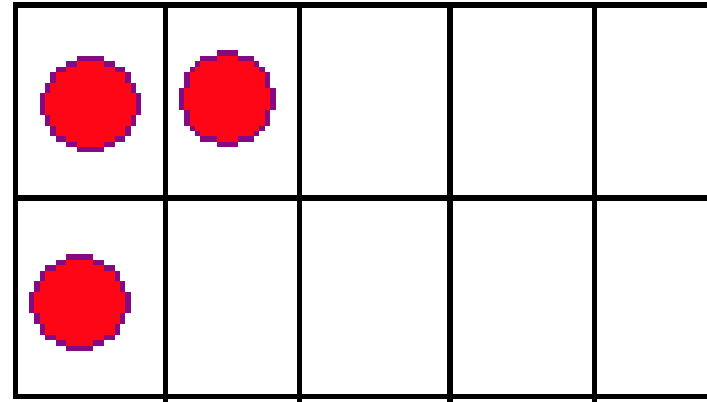
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Early Counting Routine

1. Number Name Identification

1 min.

1. This is the number ___. (Show[a] and/or write the number)

1. Let's practice naming this number. What is this number? ___. (Point to the numeral at least three times asking students to repeat the numeral name each time[b])

1. This is the number ___. (Show and/or write the number, then take it away) We can work together to find it on your (keyboard, calculator, mobile app, communication device, or other number display). Here it is, this is the number ___.

Early Counting Routine

2. Count
Collections

3 min.

4. **Give students a collection of items[c] representing the number for the day (count and label the given items) (i.e., one, two blocks; one, two, three, four, five, bears; one, two, three, pencils) The number ___ (show the numeral) represents ___ (i.e., two blocks, five bears, three pencils).**

4. **Let's practice counting the number ___ (show[a] the numeral then count and label the given items[b]). Count ___ with me ___, ___, ___. (Point to the items[c] while counting, change the order or orientation of the items[c] at least two times asking students to count[b] each time).**

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Use Manipulative and/or Virtual Manipulatives

3. Make Collections   4 min.

6. Now, let's make the number ____ (show[a] the numeral). (provide students with more items[3] than they need).

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Compare Quantities

4. **Compare Collections**   **3 min.**   **7. (Create two sets of items[c]. Give the group with the days quantity to the students and give yourself a group that has more, less or the same quantity) Count how many are in your group. _____, _____, _____. Now I'm going to count how many are in my group. _____, _____, _____. Does your group have (choose one: more, less, the same as) than mine? (If students need support, help them organize the materials so they can make a direct comparison).**

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Cardinality

5. **Count to Tell How Many**   4 min.

8. **(Place ___ items[c] in front of the students.)**
   a. **How many ___ (name the item) do we have? Let's practice counting how many (name the amount, point to and count the items. [i.e., two blocks; one, two, three bears]) So, how many ___ (name the item[c]) do you have?**

8. **Rearrange the items[c] or pictures two more times and count them again (help students notice that the amount doesn't change when objects are placed in a different order).**

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THANK YOU!

For more information: www.dynamiclearningmaps.org

For Professional Development:

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