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Professional Learning Module
Mathematical Thinking: Rethinking Calendar Time

Pacing Guide

Understanding the Math

Getting Started:

- 1. Administer the Knowledge Check
- 2. Review the following materials:
 - a. Overview of Mathematical Thinking: Rethinking Calendar Time
 - b. PowerPoint Note Pages
 - c. Instructional Resources: Rethinking Calendar Time
 - d. Content Support Documents: The Big Ideas of Counting and the Big Ideas of Patterns
 - e. Content Resources: Calendar Time in the Preschool and Primary Classrooms: Questioning the Curriculum

SLIDE	KEY POINTS	ACTION
Mathematical Thinking: Rethinking Calendar Time Understanding the Math	Mathematical Thinking: Rethinking Calendar Time The purpose of this PowerPoint Presentation is to understand the math in the calendar time activity and offer more effective instructional strategies to address those math concepts	Review Document - Overview of Mathematical Thinking: Rethinking Calendar Time
Understanding the Math What is calendar time? Calendar time is typically a whole group instruction practice where children do "calendar math."	Understanding the Math What is Calendar Time?	Guided Discussion: What are the math activities instructors address during calendar time?
Understanding the Math Temporal (time-based) patterns – hours, minutes, days of the week, etc. Understanding of temporal (time-based) patterns doesn't emerge for children until around third grade.	Understanding the Math Temporal (time-based) patterns include understanding minutes, hours, days of the week, etc.	Review Resource Article: Calendar Time in the Preschool and Primary Classrooms: Questioning the Curriculum

SLIDE	KEY POINTS	ACTION
Understanding the Math What can I do instead? PICTURE SCHEDULES	What can I do instead? Picture schedules displayed at the child's level will reinforce concepts like later, before, and after during daily activities.	Guided Discussion: Why is it important to display the picture schedules at eyelevel?
Understanding the Math What can I do instead? WEEKLY ACTIVITIES A simple representation of the 7 days of the week.	What can I do instead? A simple representation of the 7 days of the week will help children "see" the number of days that make up a week.	Guided Discussion: What are other ways to help children understand the days of the week?
Understanding the Math What can I do instead? LINEAR CALENDARS "The main problem with the calendar is that the groups of seven days in the rows of a calendar have no useful mathematical relationship to the number 10, the building block of the number system." Linear calendar Linear calendar	What can I do instead? A linear calendar is a better representation of the passing of time and looks very similar to a number line.	Review PowerPoint Notes to understand how to construct a linear calendar.
Counting While counting, patterning and geometric shapes are important skills for preschoolers to learn, doing so using the called "does not emphasize foundational mathematics." (national research council, 2003.) Patterns Geometric Shapes Geometric Shapes	Understanding the Math While counting, patterning and geometric are important skills for preschoolers to learn, doing so using the calendar "does not emphasize foundational mathematics" (National Research Council, 2009, p. 241	Note: Each of these mathematical concepts will be discussed in the presentation. Review Instructional Resource: Rethinking Calendar Time
Number Sense is defined as the ability to: • to understand the quantity of a set • to know the name associated with that quantity "three" • to identify the numeral that represents the set. 3	Understanding the Math Number sense is the ability to understand the quantity of a set, name the word associated with that quantity and to identify the numeral that represents the set.	Discuss the number sense concepts to be sure everyone understands "quantity."

SLIDE	KEY POINTS	ACTION
Understanding the Math What can I do instead? ASK, HOW MANY? How many are happy? How many are happy?	What can I do instead? Ask, "how many?" while counting throughout the day.	Discuss the three examples on the slide. Do you have other ideas?
Understanding the Math Counting - The Hopping Game Video Wathwester Trans Counting - The Hopping Game Counting - The Hopping Game	Video: Counting – The Hopping Game	Guided Discussion: As you view the video note the number sense concepts the children are learning during the hopping game.
Understanding the Math What do we know about counting? 1. Counting is part of young child's daly life. 2. We count because we want to know "how many." 3. Counting may seem to be simple but it is really quite complex.	Understanding the Math What do we know about counting?	Discuss each of the pictures on the slide and how it relates to counting.
Understanding the Math Two Types of Counting Rote Counting: Recting the number names in order from memory. Rational Counting: Matching each number name in order to an object in a collection.	Understanding the Math Two types of counting: Rote Counting Rational Counting	Guided Discussion: What are the differences between rote and rational counting? Name a few activities for what you are currently doing to address each type of counting.
Understanding the Math What can I do instead? AUTHENTIC REASONS TO COUNT 1. Separate Separa	What can I do instead? Provide children with authentic reasons to count throughout the day.	Discuss other ways to help children do rote and rational counting. Review Content Support Documents: The Big Ideas of Counting

SLIDE	KEY POINTS	ACTION
Understanding the Math Patterns All Around!	Understanding the Math Patterns all around!	Guided Discussion: What was one thing about patterns that surprised you?
Understanding the Math Patterns and Seriation: Learning from an Expert Video Most made Call Thinking Rechiffed Calendar Time Patterns and Beriation Learning from an Expert	Patterns and Seriation: Learning from and Expert Video	Guided Question: Why is it important for children to understand patterns?
Understanding the Math What can I do instead? EXPERIENCE PATTERNS Music, Songs and Fingerplays Patterns in Nature	What can I do instead? Provide multiple opportunities for children to "feel" and understand what a pattern is.	Discuss other ways an instructor can help children understand about patterns.
Understanding the Math What can I do instead? PRACTICE PATTERNS Copy a Pattern Complete or Extend a Pattern Complete or Extend a Pattern	What can I do instead? Children need to recognize and copy patterns before being ask to complete or extend a pattern.	Discuss what is meant by completing or extending a pattern.
Understanding the Math Sequence of Patterns – Video Mathinedical Thinking Rechibiting Cstendar Time The Sequence of Learning Patterns	The Sequence of Patterns Video	Guided Discussion: List the learning sequence for patterns as each are discussed in the video.

SLIDE	KEY POINTS	ACTION
Understanding the Math REMEMBER In order to recognize or extend a pattern, it must have at least three iterations, i.e., three units of repeat.	Understanding the Math Remember, in order to recognize or extend a pattern, it must have at least three iterations, i.e., three units of repeat.	Activity: Using a variety of materials, practice making several patterns with three units of repeat. Review Content Support Documents: Big Ideas of Patterns
Understanding the Math Geometric Shapes Cubes Spheres Prisms Cones Square Circle Rectangle Triangle	Understanding the Math Children need to have a strong foundational awareness that there is a close connection between the shapes we see on paper and the shapes of objects in the world.	Discuss strategies instructors currently use when addressing geometric shapes.
What can I do instead? EXPERINCE SHAPES Clay Pattern Blocks Grocery Store	What can I do instead? Provide a variety of activities for children to "experience" shapes.	Discuss ways instructors can help children understand 2-and 3-Demensional shapes.
Understanding the Math What can I do instead? TALK ABOUT SHAPES Shape Pictures Play Guessing Games Math Concept Books	What can I do instead? Talk with children about shapes and what makes the shape "that" shape.	Guided Discussion: What are ways that instructors can talk about shapes with children?
Understanding the Math What Can I do Instead? PLAY the SHAPE GAME Directions 1. Fill a bag with a variety of shapes. 2. Display all the shapes for the children and discusses the attributes, i.e. a strangle has 3 sides. 3. Return the shapes to the bag. 4. Each person takes a turn to guess a shape by feeling and describing the shape.	What can I do instead? Play shape guessing games with children.	Activity: Gather the materials for the Shape Game and practice playing it together.

SLIDE	KEY POINTS	ACTION
Understanding the Math Children learn math by doing math!	Understanding the Math It's important to remember that children learn math by doing math!	Discuss the different ways math can be addressed throughout the day other than during whole or small group instruction.
Understanding the Math REMEMBER Math activities need to be FUN! PLAYFUL EXPLORE ENGAGING AND FUN CONTROLLED TO THE MATHER AND AND CONTROLLED TO THE MATHER AND AND CONTROLLED TO THE MATHER	Understanding the Math Math should be playful, engaging, and FUN for children.	Discuss why math should be fun!
What did you learn? Rethinking Calendar Time 1. Reflect on your current practice of calendar time and make a few notes on how you might change this activity based on what you learned in this module. 2. Reflect on your current math instruction, how will you change your instructional practices?	What did you learn? Rethinking Calendar Time	Discuss the reflection questions.
Rethinking Calendar Time 1. Review the Support Documents and Instructional Resources in the module. 2. Find a teacher/partner, director or coach to support you as you rethink your calendar time activities.	Next Steps What will you do now?	Discuss next step in rethinking calendar time in the preschool classroom.
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