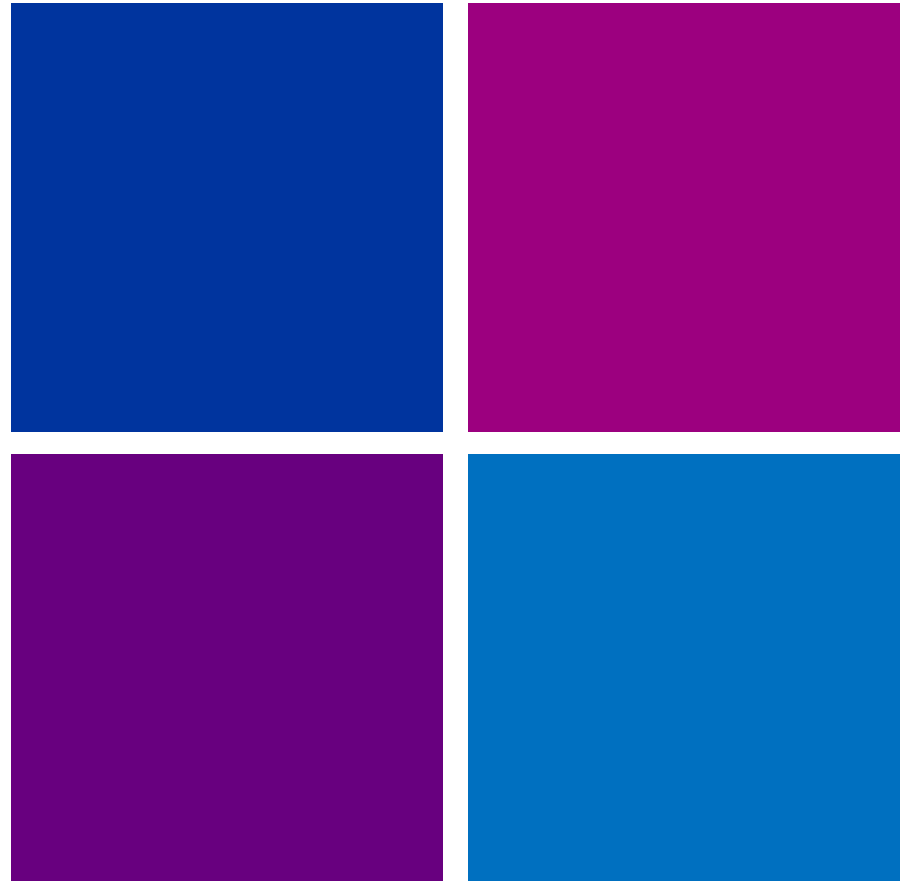




Let's Talk: Early Mathematics Development



Excerpt: Integrating Curriculum Workshop



Early Mathematics Development

“Children have an intuitive interest and understanding of mathematical concepts long before they enter school. They explore their worlds, sorting, classifying, comparing, and contrasting objects through playful and daily activities.”

Nurturing Knowledge (Neuman & Roskos, 2007)



+ Early Mathematics Development: Overview

| Key Concepts | You Will Learn |
|--|--|
| <ul style="list-style-type: none">■ Foundations in Early Mathematics■ Reasoning and Problem Solving■ Mathematics Vocabulary■ Mathematics Manipulatives☑ Curriculum Integration | <ul style="list-style-type: none">■ Ways to build solid <i>foundations</i> in: numbers & operations, patterns & relationships, measurement, and data collection & analysis■ Ideas to promote children's <i>problem solving abilities</i>■ Activities that build <i>mathematics vocabulary</i>☑ How to enhance concepts in mathematics through <i>curriculum integration</i> |

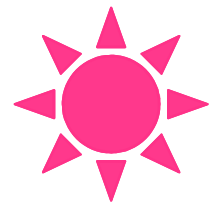
+ Early Mathematics Development: Provide Opportunities

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Early Mathematics Development Involves :

Providing a variety of opportunities for young children to explore concepts in mathematics.

What type of opportunities
promote early mathematics
development?



+ Fostering Early Mathematics Development

Types of Opportunities to Promote Math

- ❑ Surrounding children with opportunities to recognize numbers
- ❑ Make counting meaningful
- ❑ Provide numerous ways for comparing numbers
- ❑ Involve children in concrete problem-solving
- ❑ Continually “speak math” to young children
- ❑ Engage children in playing with different shapes (sorting, creating new shapes, recognizing shapes in child’s environment)

+ Fostering Early Mathematics Development

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Mathematics Supportive Learning Environment:

- ❑ Mathematics Centers/Play
- ❑ Classroom Resources
 - * Books
 - * CD-Roms
 - * Toys
 - * Manipulatives
- ❑ Talking About Mathematics
- ❑ Circle Time

+ Supportive Math Environment

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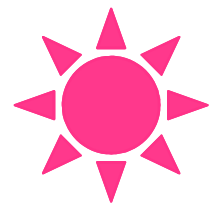




Curriculum Integration

(definition)

Curriculum integration would imply learning activities designed to help students build connections between academic subject areas. Mathematics would be integrated throughout the day in a variety of other aspects of the classrooms.





Integrating Math & Reading

There are many superb picture books that help young children explore a variety of mathematics concepts.



Ideas for Shared Book Reading Using Mathematics Picture Books

Shared Book Reading

Using Math Picture Books

➤ Let young children be active participants as you read



➤ Use the language of math as you teach

➤ Use explicit language when you teach

➤ Ask questions (that encourage application of math concepts from the book)

➤ Connect read-aloud to a hands-on math activity

+ Shared Math Activities: Board Games

“Age-old board games that incorporate numbers and counting have led to better understanding of numbers by young students.”

Quote from: Sean Cavanagh
(from Education Week)

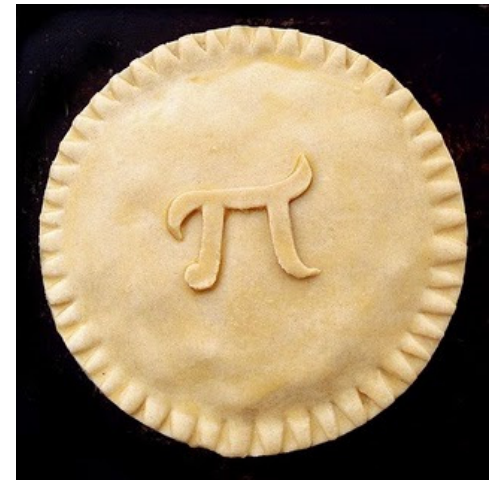


+ Preschool Math & Snacks

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Class baking projects, snack, and shared meal times can be extremely beneficial for reinforcing math skills and concepts.





Shared Math Activities: Music

“What happens when you sing counting songs at group time? You make the natural connection between music and math!”

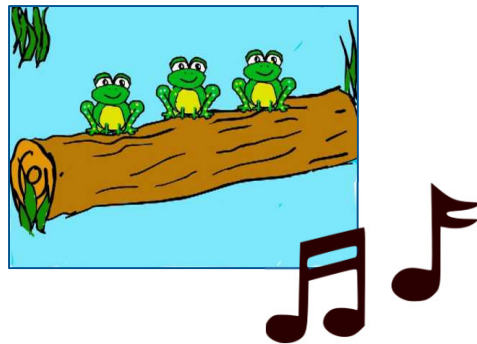
Quote from: Ellen Booth Church
(from Scholastic Early Childhood Today, 2006)



+ Activity

Math Songs and Chants

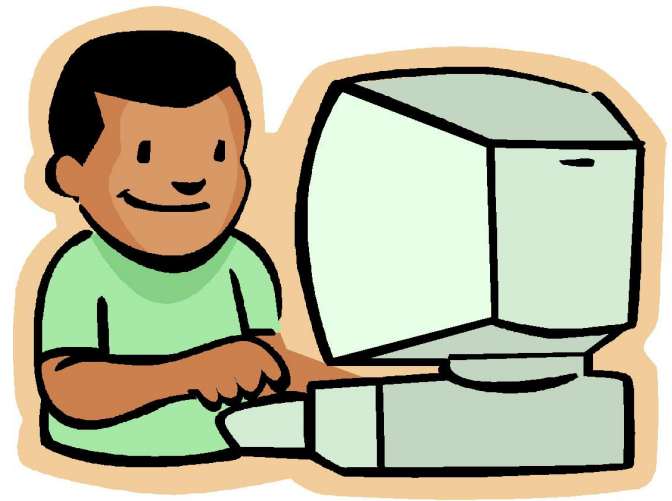
- ❑ Join together in a group to sing some counting and math concepts songs/chants together.
- ❑ Discuss the benefits of sharing math songs together with young children.



+ Technology & Math Concepts

“Students are living and learning in an age of new media. Using games to teach math concepts supports students’ needs for engaging and interactive instruction.”

-National Council of Teachers of Mathematics



+ Using Technology in the Preschool Classroom

Computers

- Problem-Solving Software
- Reinforce Math Skills/Concepts/ Vocabulary

Cameras

- Digital Camera for Visual Representations
- Video Camera for Capturing Math Projects

Other

- Interactive Math Technology
- Audio Players/Recorders
- Calculators





Progress Monitoring

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- Assess children's math progress
 - Document children's knowledge of number concepts, one-to-one correspondence, and number and shape recognition
 - Observe math processing
 - Collect samples of work
 - Use this information to plan instruction for each child.



+ Responding to Children's Success: Portfolio

- Documents each child's progress and changing development
 - Includes:
 - Screening measures
 - Number writing samples
 - Ongoing observation notes
 - Favorite math activities with family and friends
 - Photographs

+ Early Mathematics Development

- Engaging children in meaningful activities about:
 - Numbers & Operations/Patterns & Relationships/Measurement/Data Collection & Analysis
 - Problem Solving
 - Math Vocabulary
 - Using Manipulatives
 - Integration of Math Throughout the Day

CELEBRATE
SUCCESS
in
Early
Mathematics!

