

The Components of Numeracy: Tools for Engaging Learners in Meaningful Math

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LINC S: The **L**iteracy **I**nformation a**Nd** **C**ommunication System, is an online information and communications network for adult and family literacy.

<http://lincs.ed.gov>



Basis of today's presentation are publications on LINCS Math/Numeracy Collection

"The Components of Numeracy" by Lynda Ginsburg, Myrna Manley & Mary Jane Schmidt in December 2006 as a research project for NCSALL.

"Designing Instruction with the Components of Numeracy in Mind" by Lynda Ginsburg for May 2008 Focus on Basics

Numeracy

Pure mathematics is abstract and context-free, yet “unlike mathematics, numeracy does not so much lead upward in an ascending pursuit of abstraction as it moves outward toward an ever richer engagement with life’s diverse contexts and situations” (Orrill, 2001)

Numeracy Tasks

- Have a purpose (*Context*)
 - Involve mathematical principles and/or procedures (*Content*)
 - Require engagement and mathematical thinking (*Cognitive and Affective*)
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Context

The use or purpose for which an adult takes on a task with mathematical demands.

- ❑ Family or Personal
 - ❑ Workplace
 - ❑ Further Learning
 - ❑ Community
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Content

The mathematical knowledge that is necessary for the tasks confronted

- ❑ Number and Operation Sense
 - ❑ Patterns, Functions, and Algebra
 - ❑ Measurement and Shape
 - ❑ Data, Statistics, and Probability
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Cognitive and Affective

The processes that enable an individual to solve problems and, thereby, link the content and the context.

- ❑ Conceptual Understanding
- ❑ Adaptive reasoning
- ❑ Strategic Competence
- ❑ Procedural Fluency
- ❑ Productive Disposition

Source: “Adding It Up: Helping Children Learn Mathematics”,
<http://newton.nap.edu/catalog/9822.html>

Implications and Challenge

Since all three components are always in play to some extent during any numeracy activity, they must each be part of meaningful adult numeracy learning and development.

Today's Challenge

- Explore
- Enrich
- Enjoy

Gelato-Ice Cream the Italian Way

Flavor Activity

- What are your favorite flavors?



The Gelato Shop

- If you owned a gelato shop and sold about 80 containers of gelato a week, which flavors (and how many containers of each) would you order weekly?
- If you only have room for 12 containers in your display case, which flavors would you display?

