

# Using the PIAAC Framework for Numeracy to Guide Instruction: A Guide for Teachers, Lead Instructors, and Professional Development

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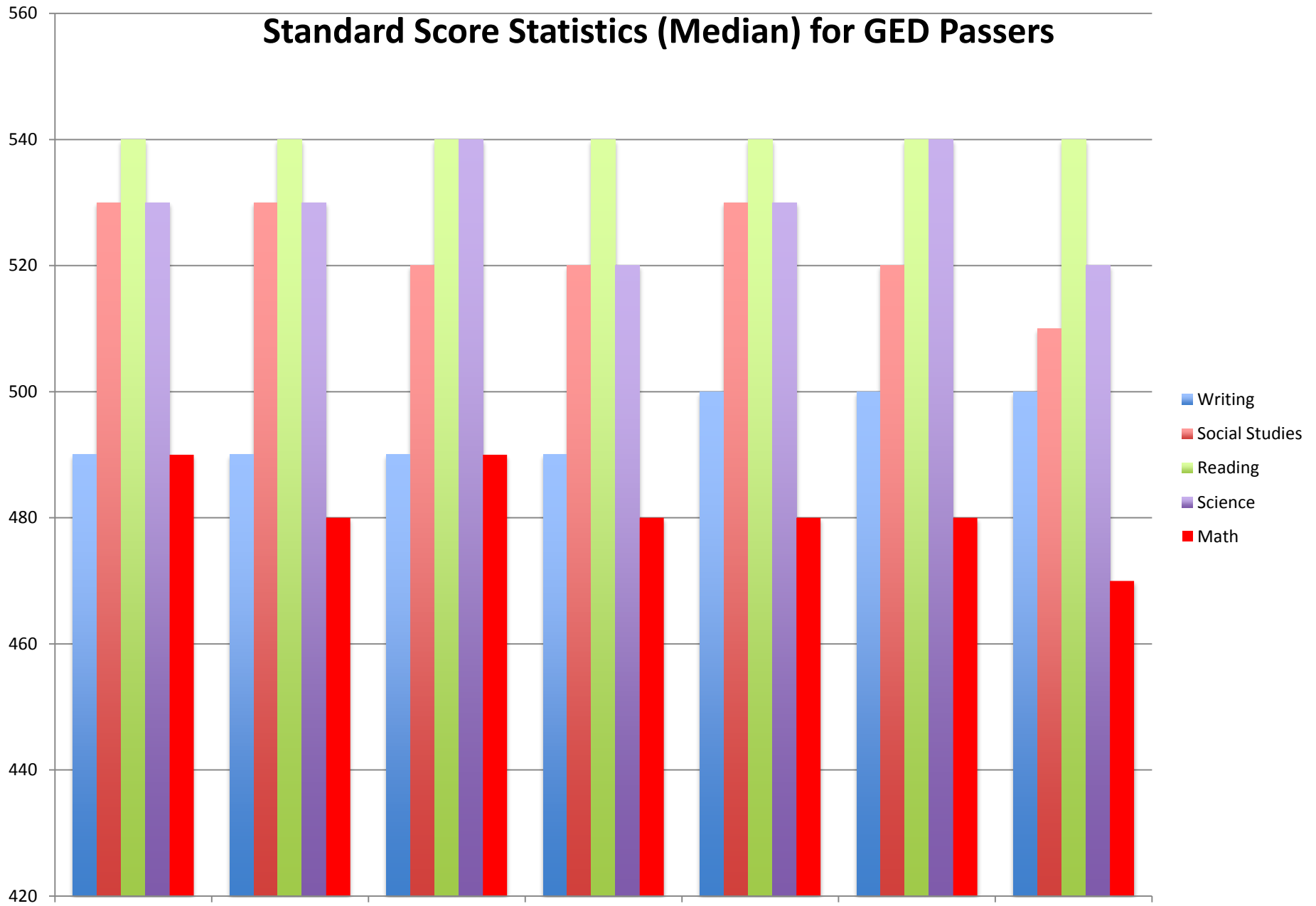
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# Goals

- Explain how PIAAC's conceptual and practical work can help the field of adult numeracy education
- Identify key elements of the PIAAC numeracy conceptual framework that have transfer value to adult education classrooms

# Standard Score Statistics (Median) for GED Passers



# So, Why PIAAC?

- Use-oriented conception of competency
- Progression for numeracy development

# Numeracy

Numeracy is the ability to access, use, interpret, and communicate mathematical information and ideas, in order to engage in and manage the mathematical demands of a range of situations in adult life.

# Facets of Numerate Behavior

Numerate behavior involves managing a situation or solving a problem

...in a real context

...by responding

...to mathematical  
content/information/ideas

...represented in multiple ways

# Numerate Behavior: Enabling Factors

Numerate behavior is founded on the activation of several enabling factors and processes:

- mathematical knowledge and conceptual understanding
- adaptive reasoning and mathematical problem-solving skills
- literacy skills
- beliefs and attitudes
- numeracy-related practices and experience
- context/world knowledge

# Numerate Behavior

Numerate behavior involves managing a situation or solving a problem **in a real context:**

- Work
- Society and community
- Education and training
- Personal lives



# Numerate Behavior

Numerate behavior involves managing a situation or solving a problem **by responding**:

- Identify, locate, access
- Act upon
- Interpret, evaluate, analyze or communicate

# Numerate Behavior

Numerate behavior involves managing a situation or solving a problem by responding to **mathematical content/information/ideas**:

- Quantity and number
- Dimension and shape
- Data and chance
- Patterns, relationships, and change

# Numerate Behavior

Numerate behavior involves managing a situation or solving a problem **represented in multiple ways:**

- Numbers and symbols
- Objects and pictures
- Visual displays
- Technology-based displays

# Discrete Skills vs. Numerate Behavior

From this:  $\frac{3}{4} \times \frac{1}{2} =$

To this: *You work on the late shift at Getz Bakery and need to prepare a report of what is sold at the end of each day. On Monday  $\frac{1}{3}$  of the slices of cake were sold. On Tuesday,  $\frac{1}{2}$  of what was left was sold. What portion of the original cake would you report was sold on Tuesday?*



# Factors Affecting Complexity of Numeracy Items

- Type of match/problem transparency
- Plausibility of distractors
- Complexity of mathematical information/data
- Type of operation/skill
- Expected number of operations

# Same Context; Different Complexity

- By the end of this unit, students will be able to apply their understanding of whole number operations and simple bar graphs in order to determine which of two childcare options is less costly.
- By the of this unit, students will be able to apply their understanding of fractions and percentages and circle graphs in order to create two different budgets represented as circle graphs based on different childcare options.
- By the of this unit, students will be able to apply their understanding of algebraic reasoning and functions in order to show with graphs and equations which childcare option is the best deal (based on cost only).

# Next Steps

- Complete drafts of Literacy and Numeracy Guides, incorporating feedback from December panel and participants
- Conduct expert and practitioner reviews
- Finalize Guide