

@lamacgirl

#inspiremathculture



It All Stacks Up: Analyzing Aspects of Learning in Mathematics and Science

Le'Vada Gray Friday, October 19, 2019 Illinois Council of Math Teachers and Illinois Science Teachers Association Conference North Pavilion 4







Inspire A CULTURE OF MATH ACHIEVEMENT

Management of Mathematic Action of Mathematic Action of Action of







How do we balance conceptual understanding and procedural fluency in mathematical and scientific concepts?





How do we use measurement in our every day life?





NAEP Assessment--4th Grade



• What is the length of the toothpick in the figure above?

Performance Data		More Data	
•Correct	20%	2 1/2 inches	20%
 Incorrect 	78%	10 1/2 inches	14%
•Omitted	2%	3 1/2 inches	23%
	_ / (8 inches	42%





NAEP Assessment--4th Grade

In this figure, how many small cubes were put together to form the large cube?





Performance DataCorrect33%







Measurement Decisions

- What is being measured?
- What is an appropriate unit?
- What is an appropriate procedure?
- Which instrument is needed to count the units?





Two Aspects of Learning Mathematics

Making Sense

Learning Social Conventions

The source of learning is internal.

The source of learning is external.





Identifying Essential Content

- What *understandings* do students need to develop for themselves?
- What aspects or social conventions do you need to tell students?





Small-Group Task



- How tall is Lady Liberty without her crown?
- How long is her head from her chin to the top of her forehead?
- What is the length of her right arm?

Public domain photo by Derek Jensen on Wikipedia





Reflecting on the Essential Content

- What *understandings* did you need to develop yourselves?
- What aspects did you need to be told?





Two Aspects of Learning Mathematics

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Final Processing

- How would measurement experiences support your student learning in STEM curriculum/program?
- What is your role in implementing or supporting these experiences?

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Thank You!

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