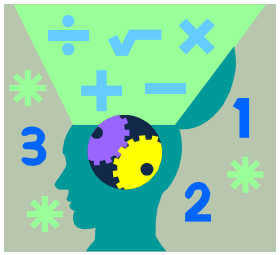
Addressing the Data Findings to Develop / Strengthen Proficiency in Mathematics



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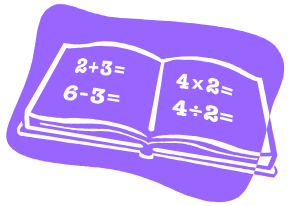
Part One: Focus on Data



I. What is Proficiency in Mathematics? (see NYSED Standards)

A.) Conceptual Understanding

B.) Procedural Fluency

1.) Automaticity

2.) Accuracy

C.) Acquisition and Use of *Problem Solving Strategies* (for example, see George Polya)

_____ _____

_____ _____

_____ _____

Part One: Focus on Data (cont.)

I. Which Tools Do We Have to Assess Our Students?

A.) ARIS

1.) Identified Data Specialist
2.) Inquiry Team

B.) ACUITY

1.) Predictives
ELA _____
Mathematics _____

2.) ITAs
ELA _____
Mathematics_____

C.) SCANTRON

(cont.)

Part One: Focus on Data (cont.)

I. Which Tools Do We Have to Assess Our Students?

D.) Others

1.) Formative—*Read *Inside the Black Box* (Dylan Wiliam and Paul Black) http://www.pdkintl.org/kappan/kbla9810.htm

2.) Quizzes : *How do you determine / measure mastery of a skill?*

3.) Homework : *Are we assigning, expecting and receiving Level 4 homework?*
What is the quality of the homework?
What is the quantity of the homework?

4.) Accountable Talk : *from the Principles of Learning*
http://www.thecenter.spps.org/pol.html

THINK: *Quality Questioning—see Bloom's Taxonomy*
Questioning Strategies—Think, Pair, Share, Wait Time

Part Two: Content & Process Strands / Teaching & Learning

I. Content Strands ***Process Strands***

_____ _____

_____ _____

_____ _____

_____ _____

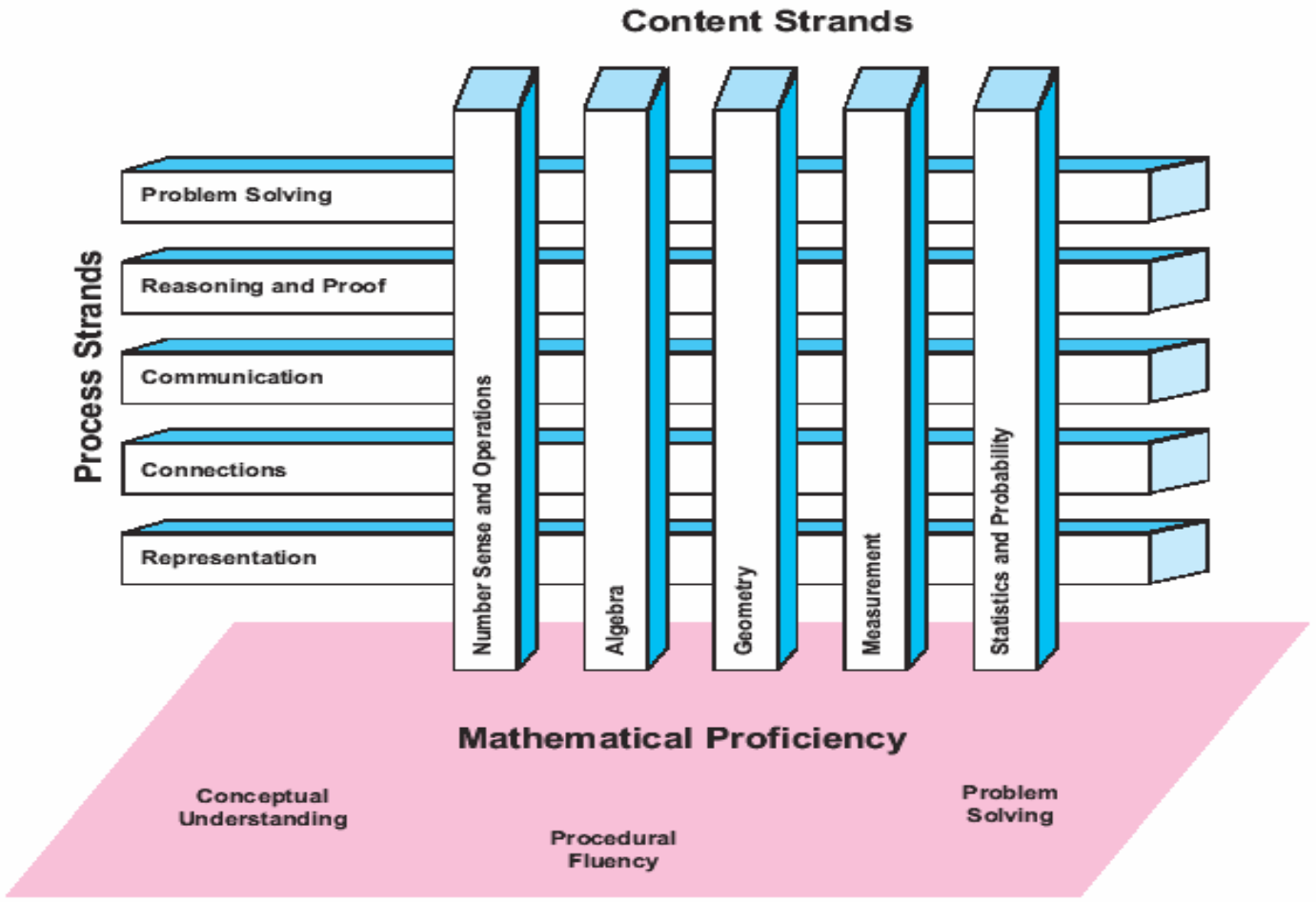
Question: *How do we work to weave both strands together to develop a math tapestry which is rigorous, challenging and engaging?*

_____

_____

_____

New York State Mathematics Standard 3



Adapted from *Mathematics Framework for the 1996, 2000, and 2003 National Assessment of Educational Progress.*

http://www.emsc.nysed.gov/3-8/MathCore.pdf

Part Two: Content & Process Strands / Teaching & Learning (cont.)

II. ***Sound Pedagogy*** *(provide and share examples)*

A.) Concrete Models _____

B.) Virtual Manipulatives

1.) Visit the *Illuminations link at* www.nctm.org

2.) Visit the *National Library of Virtual Manipulatives* through the *Math Education Center at George Mason University* http://nlvm.usu.edu/en/nav/vlibrary.html

3.) Others _____

_____

_____

C.) Representations _____

D.) Abstract _____

Q & A _____

_____

Part Two: Content & Process Strands / Teaching & Learning (cont.)

III. Teach for Understanding and Mastery

A.) The Model or Representation

B.) The Algorithm / Example

C.) The Word Problem

Q & A

Part Two: Content & Process Strands / Teaching & Learning (cont.)

IV. Principles for the Prevention and Intervention of Mathematics Difficulties *By: Lynn S. Fuchs and Douglas Fuchs. Peabody College at Vanderbilt University*

A.) Four Principles of Mathematics Prevention

1.) Quick Pace, Varies Activities, and Engagement

_____

_____

2.) Challenging Achievement Standards (Motivating Students)

_____

_____

3.) Self-Verbalization (Guided Practice and Specific Strategies)

_____

_____

4.) Physical and Visual Representations (THINK: Virtual Manipulatives)

_____

_____

Q & A _____

_____

Part Three: Focus on Mathematical Language (Vocabulary)

I. Mathematical Language (Vocabulary)

A.) See *www.nysed.gov* Mathematics Toolkit /

http://www.emsc.nysed.gov/3-8/MathCore.pdf

1.) Glossary

2.) Grade Specific Mathematical Language

B.) Strategies

1.) Word Walls

2.) Walking Word Walls

3.) English Language Learners

http://www.centeroninstruction.org/resources.cfm?category=math&subcategory=&grade_start=&grade_end=

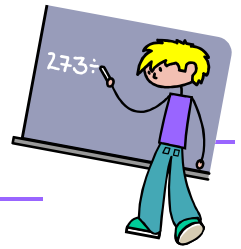
4.) Concentration and Match 'Em

5.) Others _____

_____

Q & A _____

_____



Part Four: Format of the Test

I. *Multiple Choice*

A.) Can students move from the test to answer document?

B.) Is there a penalty for guessing or leaving blanks?

C.) Are there strategies to teach *prior* to the administration of the test which can be a part of the daily math lesson?

D.) How can I access practice materials which parallel the assessments?

E.) Q & A _____

_____

II. *Short / Extended Responses*

A.) Do students understand what it means to EXPLAIN?

B.) Do students understand that the question is being rated on an existing rubric?

C.) Q & A _____

_____

Part Five : Graphics on the Assessments

I. ***Suggest the Topic / Skill Being Assessed***

A.) Examples from different strands / topics

Math Strands (Content) Graphic(s) Draw one Model

1.) _____

2.) _____

3.) _____

4.) _____

5.) _____

II. ***Review Models to Ensure Understanding*** ***(see below)***

<----------15 Feet---------->

III. ***Assume Nothing—Especially as it relates to reading and interpreting charts and tables***

(e.g., titles, labels, spacing, the placement of zero)

IV. ***Q & A*** _____

_____

Part Six : DISTRACTERS *(TRAPS TO AVOID)*

I. ***How Can You THINK Like a Test Writer?***

A.) Plan to recognize and avoid distracters/traps

B.) Review / discuss examples from previously administered tests

C.) Create *appropriate* distracters (common errors) from previously administered assessments

II. ***How Can Knowledge of Distracters Promote COMMUNICATION* (process)?**

A.) Oral

1.) Bloom's Taxonomy

2.) Questioning Strategies *(e.g., wait – time, think, pair, share)*

3.) Accountable Talk (see *Principles of Learning*)

B.) Written – Understand the Meaning of:

1.) Rubrics

2.) EXPLAIN

III. ***Q & A*** _____

_____

_____