

WNET Celebration of Teaching and Learning

Marilyn Burns

www.mathsolutions.com

Effective Math Teaching Grades 1-6

Linking Assessment and
Instruction to Meet the
Needs of All Students

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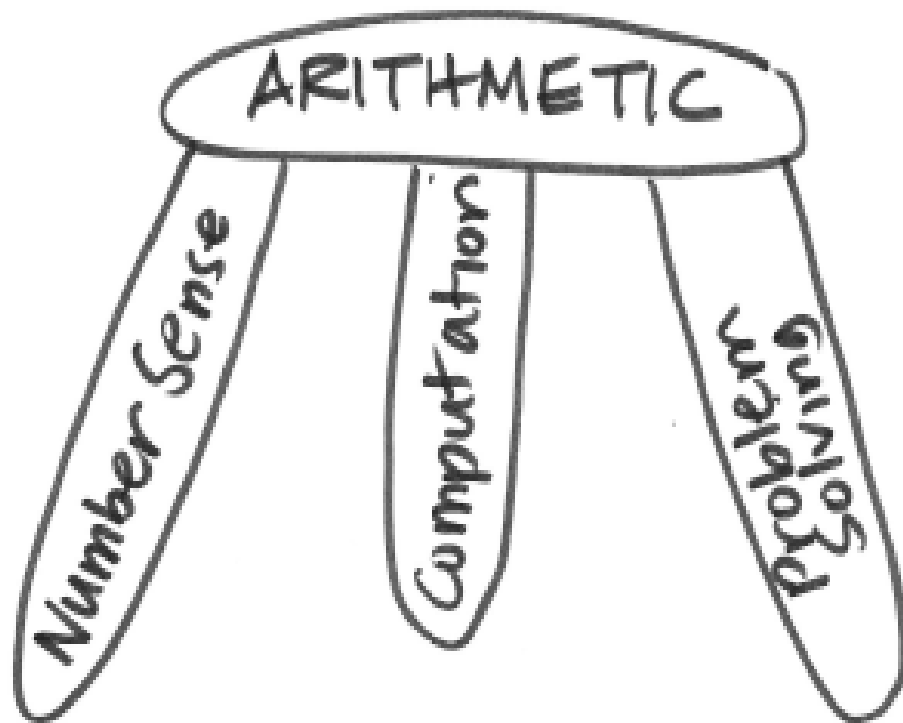


NET WT. 30 OZ. (1 LB. 14 OZ.) (850g)

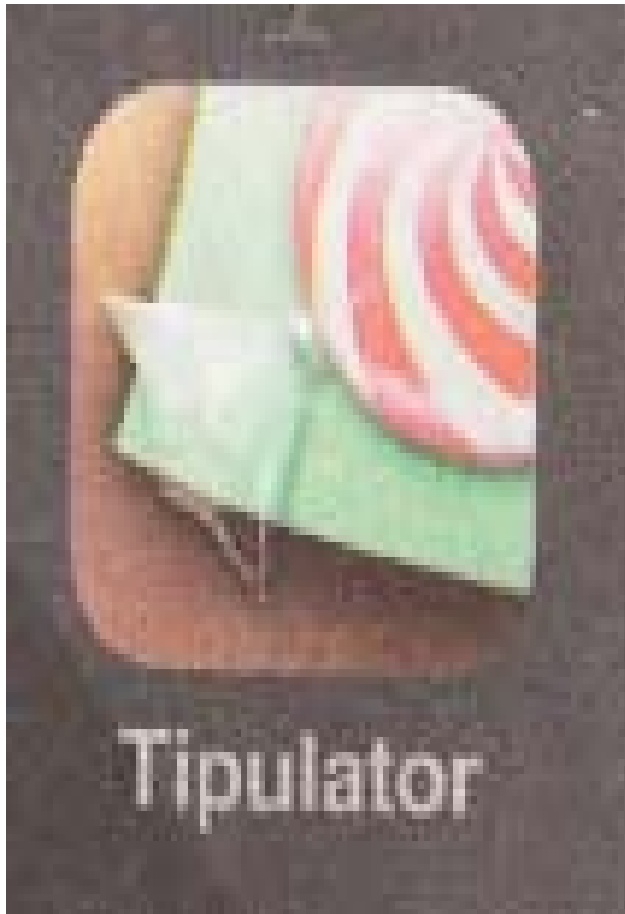
KING KONG
OWN THE DVD!

Arithmetic

- Computation
- Number Sense
- Problem Solving







Tipulator

\$0.99 • Take the guesswork out of restaurant tipping.

Enter the bill amount, select a percentage, and Tipulator will calculate the tip. And it'll split the check among friends.

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Roles of Assessment

- Report school/district effectiveness
- Inform classroom instruction
- Monitor individual student progress in order to
 - Differentiate instruction
 - Identify students for intervention

Strategies for Classroom Assessments

- Observe students
 - whole class discussions
 - small group work
- Examine student work
 - Incorporate writing
 - Take occasional class inventory
 - Let students set parameters
- Individual Math Assessments

Students' Common Arithmetic Errors

① $3 + \square = 7$

②
$$\begin{array}{r} 41 \\ -23 \\ \hline \end{array}$$

③
$$\begin{array}{r} 120 \\ -50 \\ \hline \end{array}$$

④ $\frac{1}{2} + \frac{2}{3}$

⑤ $\frac{1}{3} + \frac{1}{4}$

Students' Common Arithmetic Errors

$$\textcircled{1} \quad 3 + \boxed{10} = 7$$

$$\textcircled{2} \quad \begin{array}{r} 41 \\ -23 \\ \hline 22 \end{array}$$

$$\textcircled{3} \quad \begin{array}{r} 120 \\ -50 \\ \hline 130 \end{array}$$

$$\textcircled{4} \quad \frac{1}{2} + \frac{2}{3} = \frac{3}{5}$$

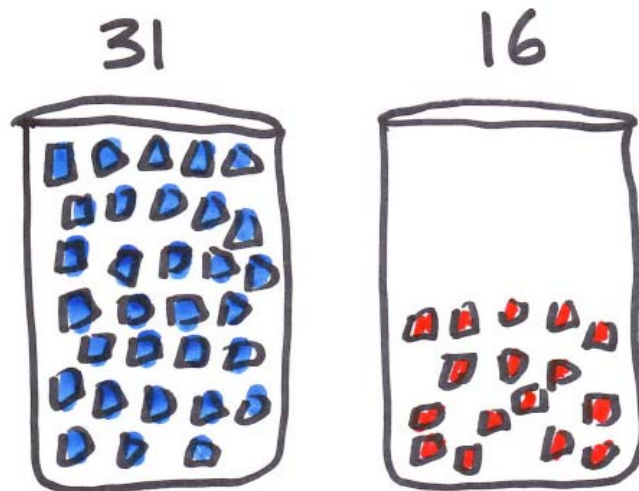
$$\textcircled{5} \quad \frac{1}{3} + \frac{1}{4} = \frac{2}{7}$$

Differentiation

Intervention

Blue and Orange Cubes Problem

2 identical jars
31 blue cubes
16 orange cubes



How many more blue cubes than orange cubes are there?

Blue & Orange Cubes

Class Inventory

Grade 2 (25 students)

- 9 Counted up
- 6 Counted backward
- 3 Found missing addend
- 3 Subtracted
- 1 Used cubes
- 3 Unsuccessful

Blue & Orange Cubes

There are ____ blue cubes.

There are ____ orange cubes.

How many more blue cubes than orange cubes are there?

7, 4

10, 4

30, 4

30, 14

36, 10

56, 12

56, 18

100, 43

91, 16

503, 398

Math and Literacy

- Bringing meaning to symbols
- Sense making is at the heart
 - Comprehension
 - Understanding
- Reading has one gatekeeper skill; math has many
- Assessment integral

Individual Mathematics Assessments

Math Solutions
Professional
Development

What to assess?

- Conceptual Understanding
- Basic Facts
- Place Value
- Relationships between operations
- Number Sense
- Problem Solving
- Paper & Pencil Computation

Also to Assess: Learning Characteristics

- Shows confidence
- Notices errors and/or self-corrects
- Able to communicate thinking
- Perseveres to figure out answers
- Uses a variety of strategies

Challenges to Conducting Individual Math Assessments

- Reading but not Math
- Too much data
- Not enough time
- Students can hide
- “What do I do now?”

Components

- **Assessments**
 - Early Number
 - Addition
 - Subtraction
 - Multiplication
 - Division
 - Fractions
- **Reports**
 - Class Profile
 - Individual Student Narrative
- **What next?**

Grade 3
OCT/NOV 2008

Addition Assessment Class Profile			Brenna	Kobe	Pearl	Jordan	London	Charlotte	Sam	Andrew	Adrian
Basic Facts	A'	Rapidly recalls basic addition facts	✓	✓	✓	0	0	✓	✓	✓	0
Place Value	B'	Counts objects in a group by 2s	✓	✓	✓	✓	0	✓	✓	✓	✓
	C'	Identifies digits in ones and tens places	✓	✓	✓	✓	✓	✓	✓	✓	✓
	D'	Understands place value of tens and ones	0	✓	✓	0	0	0	✓	✓	✓
	E'	Adds 10 to a number without counting	✓	✓	✓	0	0	✓	✓	✓	✓
Number Sense	F'	Adds mentally	0	✓	✓	0	0	✓	✓	✓	✓
	G'	Estimates the sum of two numbers	✓	✓	✓	0	0	✓	✓	0	✓
Problem Solving	H'	Solves missing addend problems	✓	0	0	0	0	✓	0	0	✓
Paper & Pencil Computation	I'	Adds two-digit numbers with regrouping	✓	✓	✓	✓	✓	✓	✓	✓	✓
Learning Characteristics	J'	Shows confidence	✓	✓	✓	0	0	0	✓	✓	0
	K'	Notices errors and/or self-corrects	0	✓	✓	0	0	0	✓	✓	✓
	L'	Able to explain thinking	✓	✓	✓	✓	✓	✓	✓	✓	✓
	M'	Perseveres to figure out answers	0	✓	✓	0	0	✓	✓	✓	0

Obama Platform

Barack Obama and Joe Biden believe we should not be forced to spend the academic year preparing students to fill in bubbles on standardized tests . . .

They will work to create assessment models that provide educators and students with timely feedback . . .

These assessments will provide immediate feedback so that teachers can begin improving student learning right away.