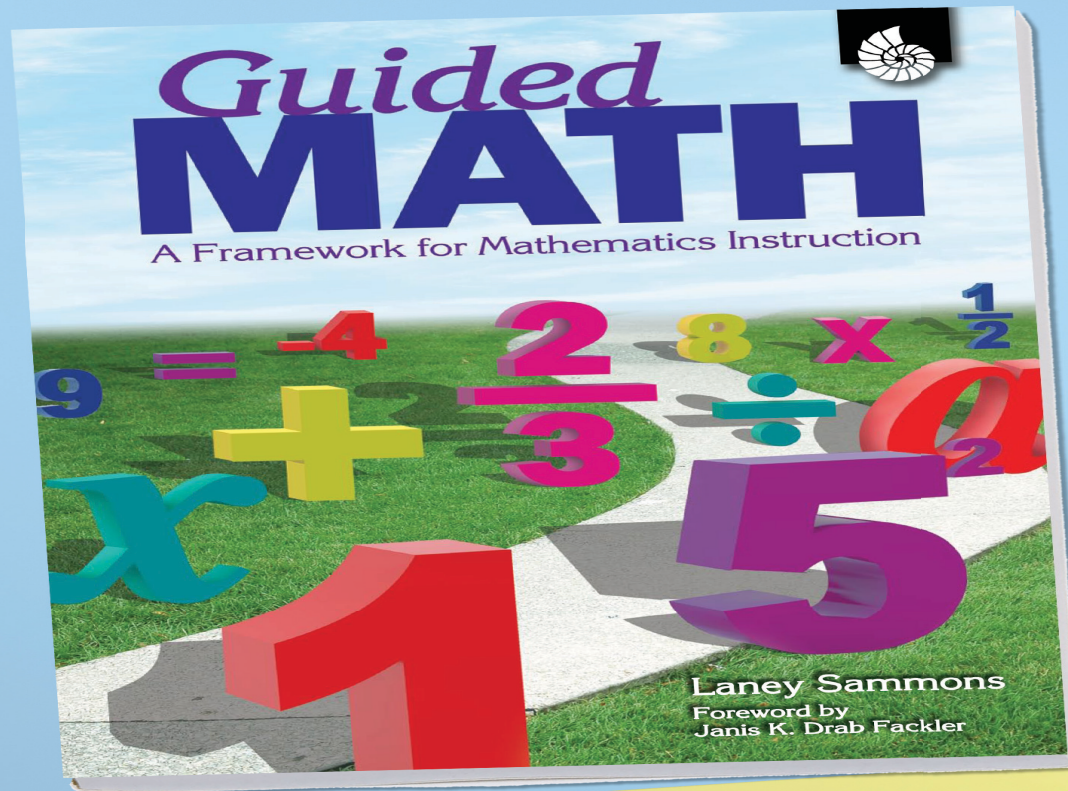


Book Study
for

Session 2



Last session...

Please read chapters 1-3

Discussion Questions - Be ready to share your thoughts



Chapter 1: Framework for Instruction

Which of these instructional components on **p. 18** have you used in your classroom?

Review the sample Guided Math schedule on **p. 30**. How easily do you think this could be implemented in your classroom? What modifications would you need to make to this schedule in order to meet the needs of your students?



Chapter 2: *Create a Classroom Environment of Numeracy*

There are many ideas listed in chapter 2 of *Guided Math: A Framework for Mathematics Instruction*, **pages 33–66**, for creating a numeracy-rich classroom. Which ones do you already use? Which ones could you begin to use with relative ease? Are there others that you could use that are not mentioned? Talk about these in your group.

Chapter 3: *Math Warm-ups*

Think about the upcoming mathematical concepts your class will be learning. What are some math stretches that apply to these concepts that you can use to increase student understanding?



Possible Next Steps...

- **Baby** steps
- First month
 - Build up your math games
 - Teach them
 - Implement morning stretches
- What resources do you already have?
- What resources do you need?



The Sessions

- Dates – **Tues. Jan. 28**, Feb. 11 and April 1

Today

- Review of Guided Math
- Creating a Numeracy Rich Classroom
- Math Warm-ups
- Sharing of Resources – Carolyn, Deanna

<http://35mathk8.weebly.com>



How can we...?

- Reach students at all levels of achievement
- Provide diverse methods of learning
- Allow more opportunities for observation and communication by students
- Encourage active engagement by students



What is Guided Math?

A flexible instructional framework that enables teachers to:

- determine students unique needs
- address those needs through a combination of whole class instruction and small group instruction



The Guided Math framework offers a **daily menu of instruction** from which teachers can choose based on the **needs of their students** and upon the **concepts** being taught.



Guided Math Framework

Choice Components

- Whole-Class Instruction
- Small-Group Instruction
- Math Workshop



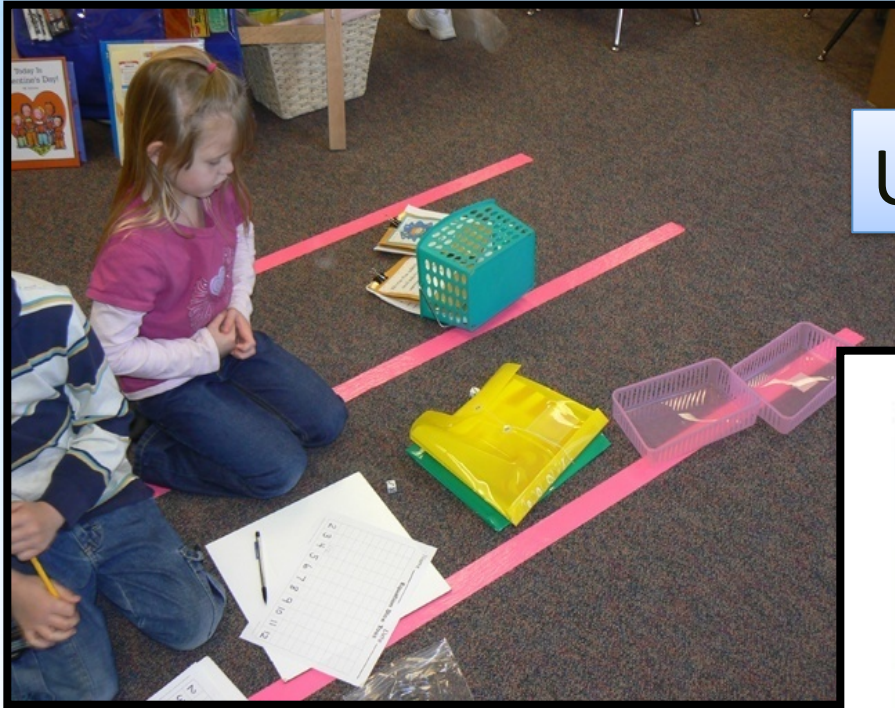
Guided Math Framework

Daily Components

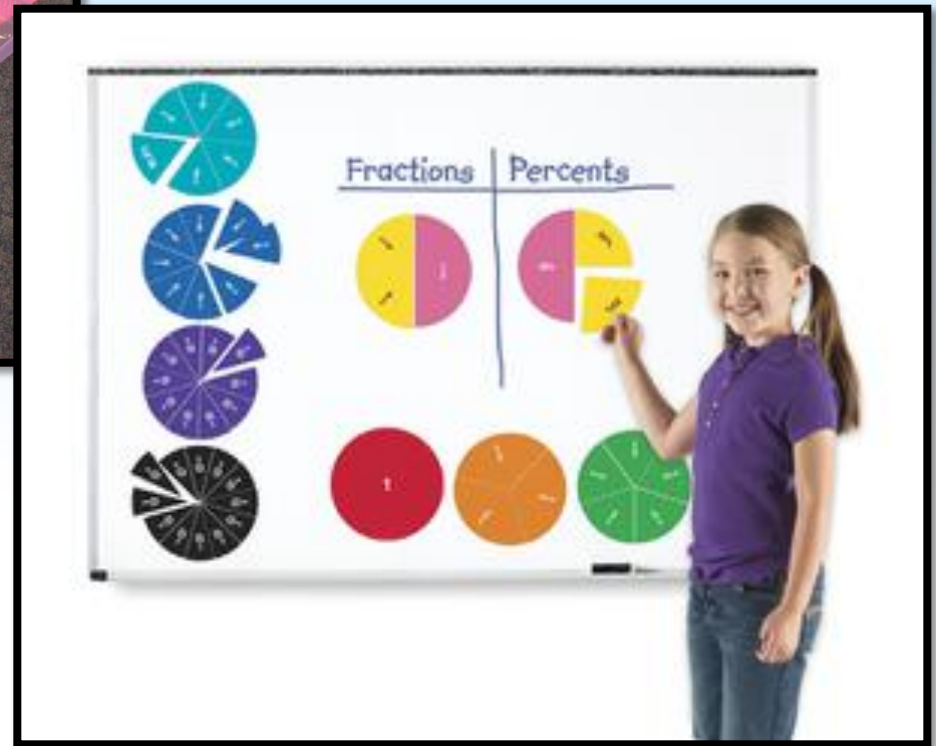
- **Classroom Environment of Numeracy**
- **Math Warm-up**
- Individual Conferences
- Ongoing Assessment

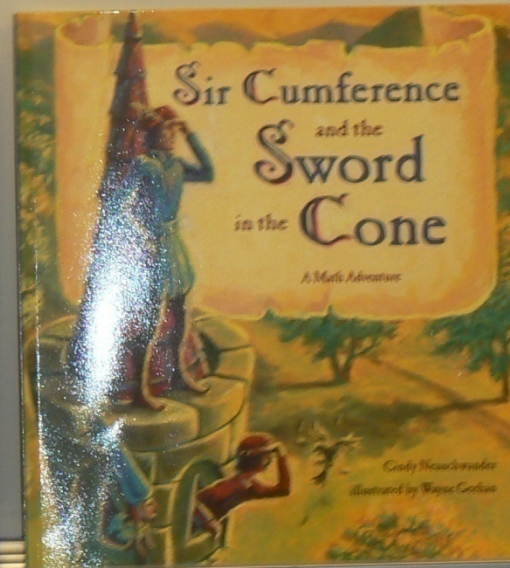
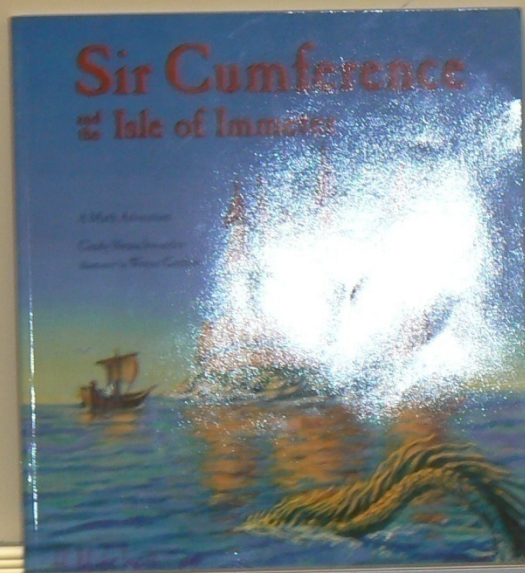


Creating a Classroom Environment of Numeracy



Use of Manipulatives





Read literature that promotes exploration and application of math concepts



zero 0

minus (-)

5 - 2 = 3
subtraction sentence

difference

6 - 3 = 3 — difference

fewer than

are left (-)

more than

is equal to (=)

plus (+)

3 + 1 = 4
addition sentence

sum

2 + 3 = 5 — sum

all together (+)

add (+)

3 + 3 = 6
doubles fact

in all (+)

count on (+)

Focus on Mathematical Vocabulary



MATH WORD WALL

place value of (tenths)
 $295.\underline{7}$

whole number
 $998,276$ 15 $24,907$
 $1,258$ 3 767

greater than
 $5 > 2$

less than
 $2 < 5$

math symbols
 $>$ $<$ $+$ $-$ $=$ \neq \times
greater than less than add subtract equal not equal multiply

1, 4, 2, 5 place value
Thousands Hundreds Tens Ones

$2 \times 4 = 8$ **×** $3 \text{ groups of } 5$
(multiply) $3 \times 5 = 15$
5 times 4 is 20

$12 \div 3 = 4$ \div $4 \overline{)24}$
(divide)
18 divided by 3 is 6

regroup

more than

elapsed time

quotient
 To find the quotient, I need to divide.
 $100 \div 5 = 20$

perimeter
(illustrate around)

sum
 $8 + 4 = 12$ $15 + 24 = 39$

coins

second
(measure of time - 60 seconds = 1 minute)

product
 To find the product, I need to multiply.
 $2 \times 3 = 6$ $15 = 5 \times 3$

estimate
Estimate the product. Try to round to a 10 or 100.
 12×18

minute
(measure of time - 60 seconds)

array
 $3 \times 4 = 12$

Display a Mathematics Word Wall

Attendance Fraction

numerator

$\frac{3}{4}$

This tells how many parts you have out of the whole.

9

10

Boys

17

18

Total

8

8

Girls

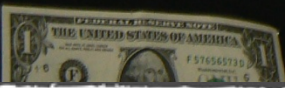
denominator

This tells how many parts make up the whole.

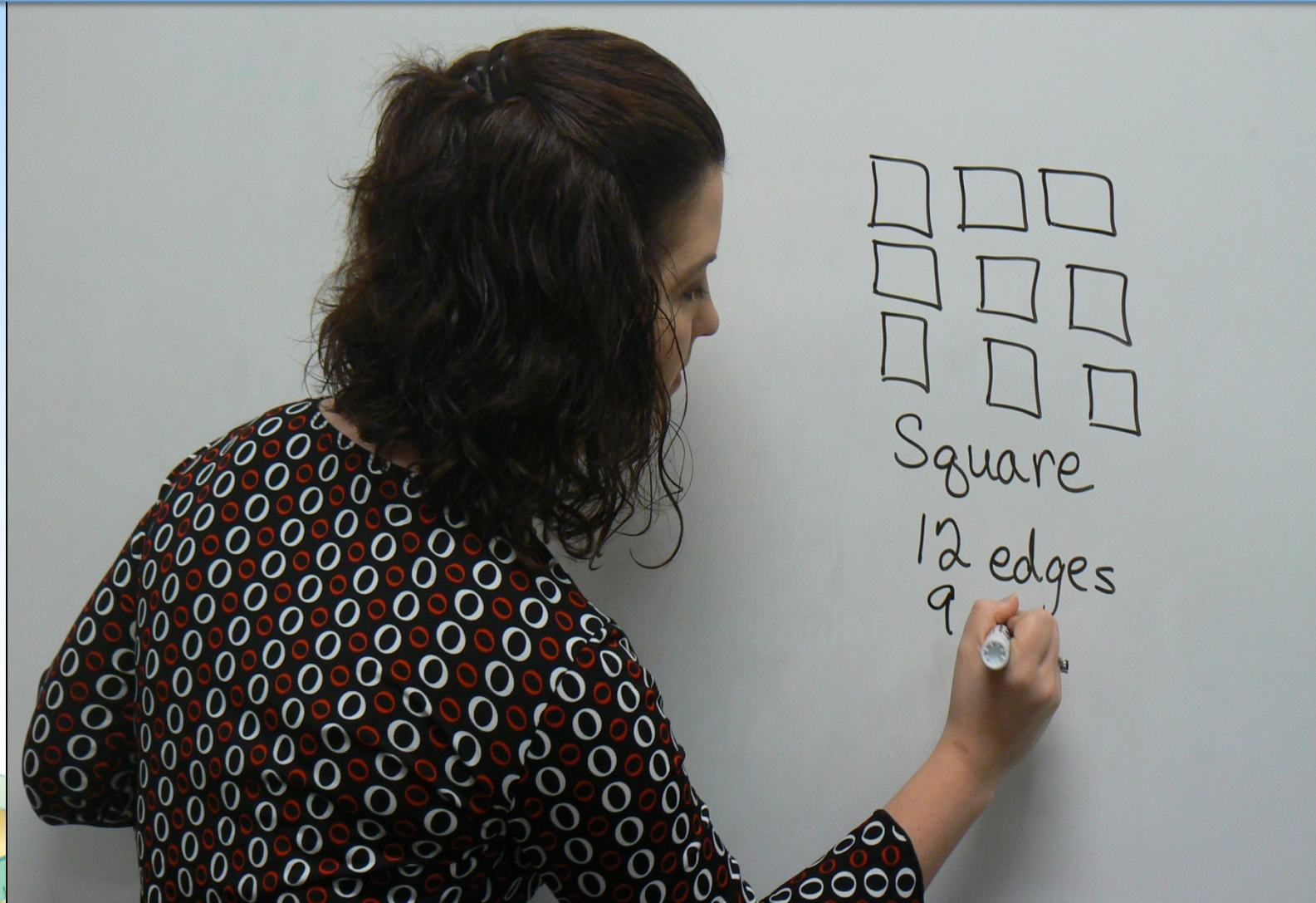
$\frac{3}{4}$

Link Math to Real Life

Coin Counter



Demonstrate, model, and do “think alouds” of problem solving strategies.



Create and display of class-made charts tell of math processes and activities.

How many ways can you show a number?

25 2 tens and 5 ones




20+5



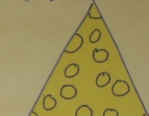
twenty-five

19+6

10+10+5

30
-5

| Isosceles Triangle | Scalene Triangle | Equilateral Triangle |
|---|---|---|
|  |  |  |
| It is a triangle that has two equal sides. It has two acute angles and one obtuse. | It is a triangle that has no equal sides. It has two acute angles and one obtuse. | It is a triangle that has three equal sides. It has three acute angles. |

Composite numbers and their factors

There are more composite numbers than there are prime numbers.

The numbers 144, 224, and 507 are not composite or prime.

36

52

108

76

144

65


100

12

62

9

8

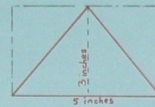


Integrate math into all curricular areas.



Create and display of class-made charts tell of math processes and activities.

M5M1a: Students will find the area of \triangle



Area of triangle = $\frac{\text{base} \times \text{height}}{2}$
In this model, area = $\frac{5 \times 3}{2} = \frac{15}{2} = 7.5 \text{ sq. in}$

To find the area of a rectangle, multiply the length by the width.
Area = L x W

A triangle can be made into a rectangle by extending the lines.

The area of the triangle is half the area of its related rectangle.

Area = $5 \times 9 = 45$

Area = 30 sq. in

Area = 15 sq. in

$8 \times 5 = 40 \text{ sq.}$

Area = $40 \div 2 = 20 \text{ sq.}$

$\frac{45}{2} = 22.5 \text{ sq.}$

Area of \triangle

30 sq. in

15 sq. in

30 sq.

30 sq.

30 sq.

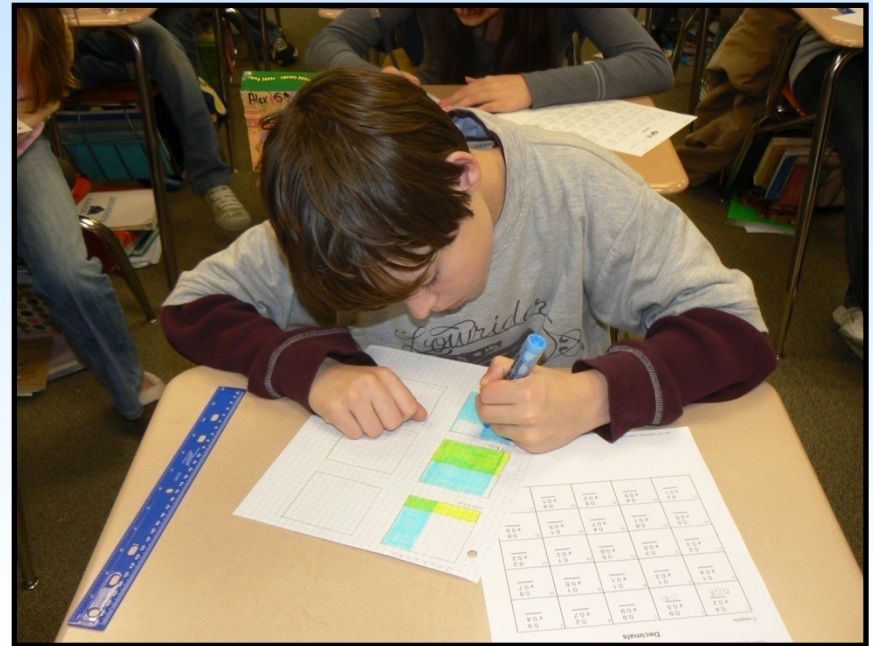
30 sq.



Use student calendars and/or agendas.

Creating Math Rich Classroom Environments

Frequently use graphing activities based on classroom activities.



Provide instruments of measurement (thermometers, rulers, scales, measuring cups).



Use Graphic Organizers Related to Math Processes.



Daily Framework for Solving a Problem of the Week from *Action Packed Problem Solving* by Michelle Windham and Beth Pollock Available through Action Packed Publications

James _____

Monday: What is this problem asking you to find?

If Jose doubles his brownie recipe, how many pints of sugar will he use?

Tuesday: What are the important facts in the problem? List them here.

1. Jose needs 2 cups of sugar.
2. Jose is going to double the recipe.
3. There are 2 cups in 1 pint.

Wednesday: What strategy or operation should be used to solve the problem? Explain or illustrate it here.

This problem goes with customary units of measurement. Students can make a list of the customary units and use that to solve the problem.

Thursday: Solve the problem. Show all work.

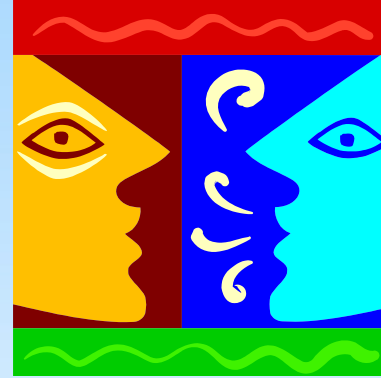
This is a great time to review customary units of measurement. You can create flash cards, put students in pairs, and have them quiz each other on the facts.

Jose is making brownies for the school luncheon. The recipe calls for 2 cups of sugar. If he doubles the recipe, how many pints will he use?

2 pints (sentences will vary)

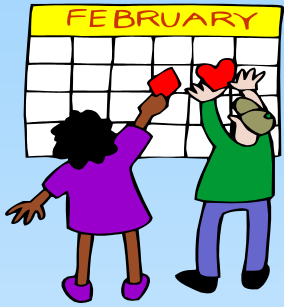
Friday: Write your answer in a complete sentence. Does it solve the problem?

Turn and Talk



What are some other ways to create an environment of numeracy ?





Morning Math Warm-ups

- Mathematical Stretches
 - Short task
 - Focus on the same strand all week
 - Add to Math Workshop (centres)
- Mathematical Current Events
- Math-Related Classroom Responsibilities
- Calendar

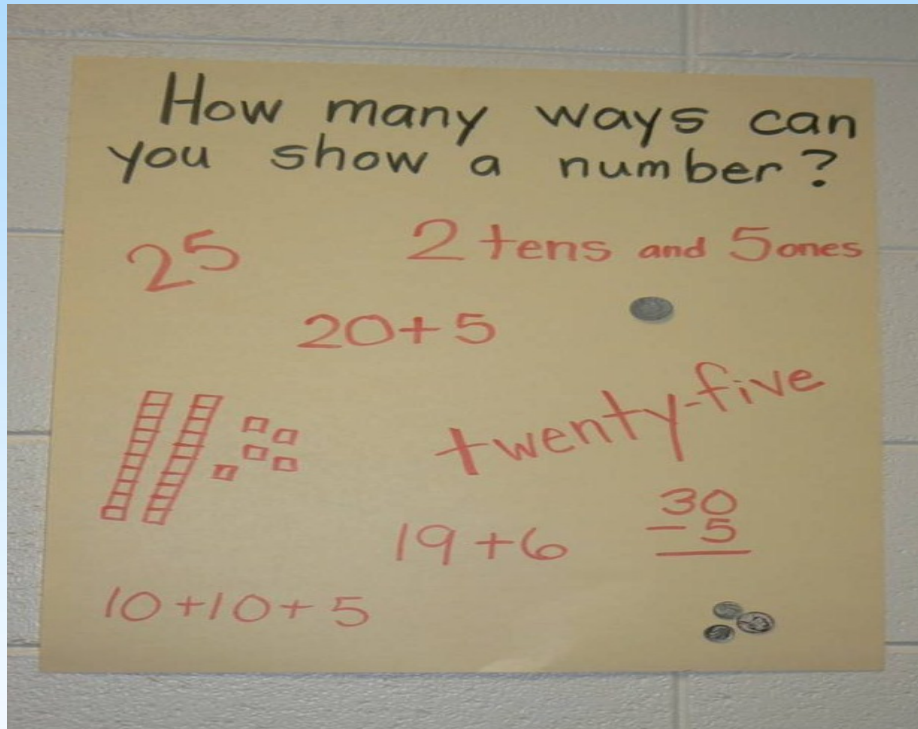


Mathematical Stretches



Data Collection and Analysis Tasks

Mathematical Stretches



Number of the Day Stretch

Mathematical Stretches

What's Next?

1, 2, 4, 7, 11, 16,

—, —, —, —, —, —,

79, —, —, —, —, —,

—, —, —, —, —,

—, —, —, ...

What's Next? Stretch



Mathematical Stretches



- How Did My Family Use Math Last Night? Stretch



_____ Makes Me
Think of... Stretch





Math Current Events

Teacher or students bring in articles or web sites with current events that have to do with math:

- Levels of precipitation
- Economic statistics
- Population
- Vote counts



Problems of the Day

- Provide problems with more than one correct answer and multiple methods of solution.
- Require students to tell how they solved the problem either orally or in writing with multiple representations.
- Students complete independently; then as a class go over strategies used to solve the problem and possible answers.
- Include new vocabulary.
- Present problems in unfamiliar ways.
- Allow students opportunities to struggle to discover the answers.



Think Time...

- Can you think of other types of math warm-ups suitable for your classroom?
 - Problem Solving Tasks (Begin with a longer focus)



Math Warm-ups

Math-Related Classroom Responsibilities

- Attendance
- Hot Food Day counts
- Fund raising
- Class events
- Field Trip Collections
 - Total cost of the trip
 - Total amount collected
 - Percentage of total amount needed



Sharing

For next time...

- Finish the reading
- Explore more math warm-ups
- Gather your resources for Math Workshop (centres)



- Try teaching a small group

How can you assess students to determine grouping prior to and during instruction?

- Observation of an assigned task
- Written explanation of understanding by students in their math journals
- Pre-assessment
- Formative test results
- Performance in earlier work on sequential math concepts
- Checklist
- Conferencing



Math Workshop

Centres/Workstations etc.

- Students work independently, in pairs, or in groups.
- Procedures and routines must be established and practiced.
- Activities should provide opportunities for exploration or practice of mastered skills.



Math Workshop/Math Work Stations/ Centres

- Math journals
- Games
- Open Questions
- Classroom management

