

Primary Mathematics

(Singapore Math)

Fractions

Data
Analysis

Volume

- * Primary mathematics helps children make connections between pictures, words, and numbers.
- * Cumulative program that revisits concepts covered earlier by connecting strands of mathematics.
- * Topic intensive, with fewer topics covered per grade level.
- * Smaller textbooks, with skills not re-taught formally.
- * Mental-math strategies embedded in the program.
- * Highly visual program that benefits special-needs students and inclusion students.

Whole and big
numbers!

Algebra

Geometry

Percentage

Decimals

Ratio

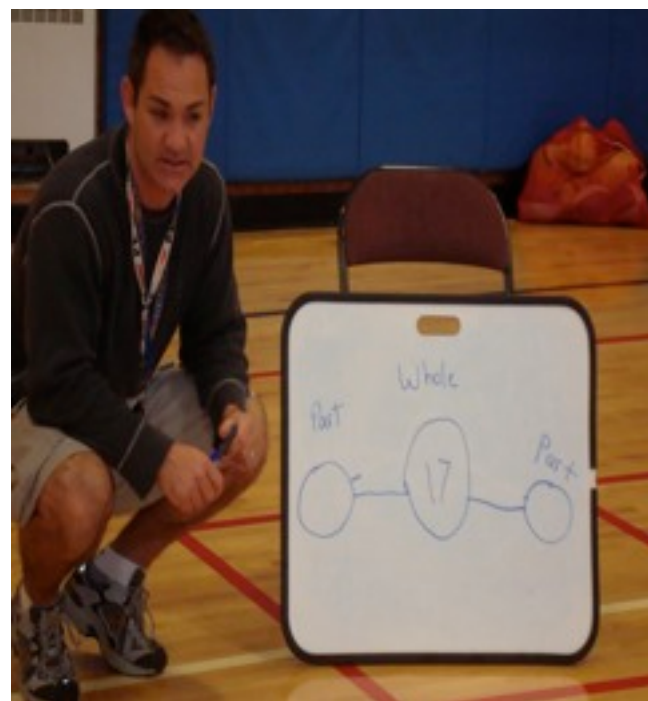
MATHEMATICS BEGINS WITH COUNTING!

Children build number sense through repetition and exposure to counting activities.



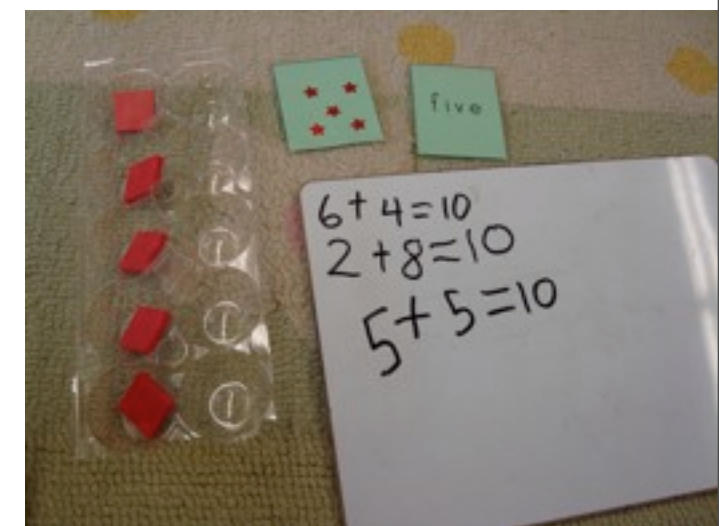
NUMBER BONDS

□ WHOLE-PART-PART COMBINATIONS

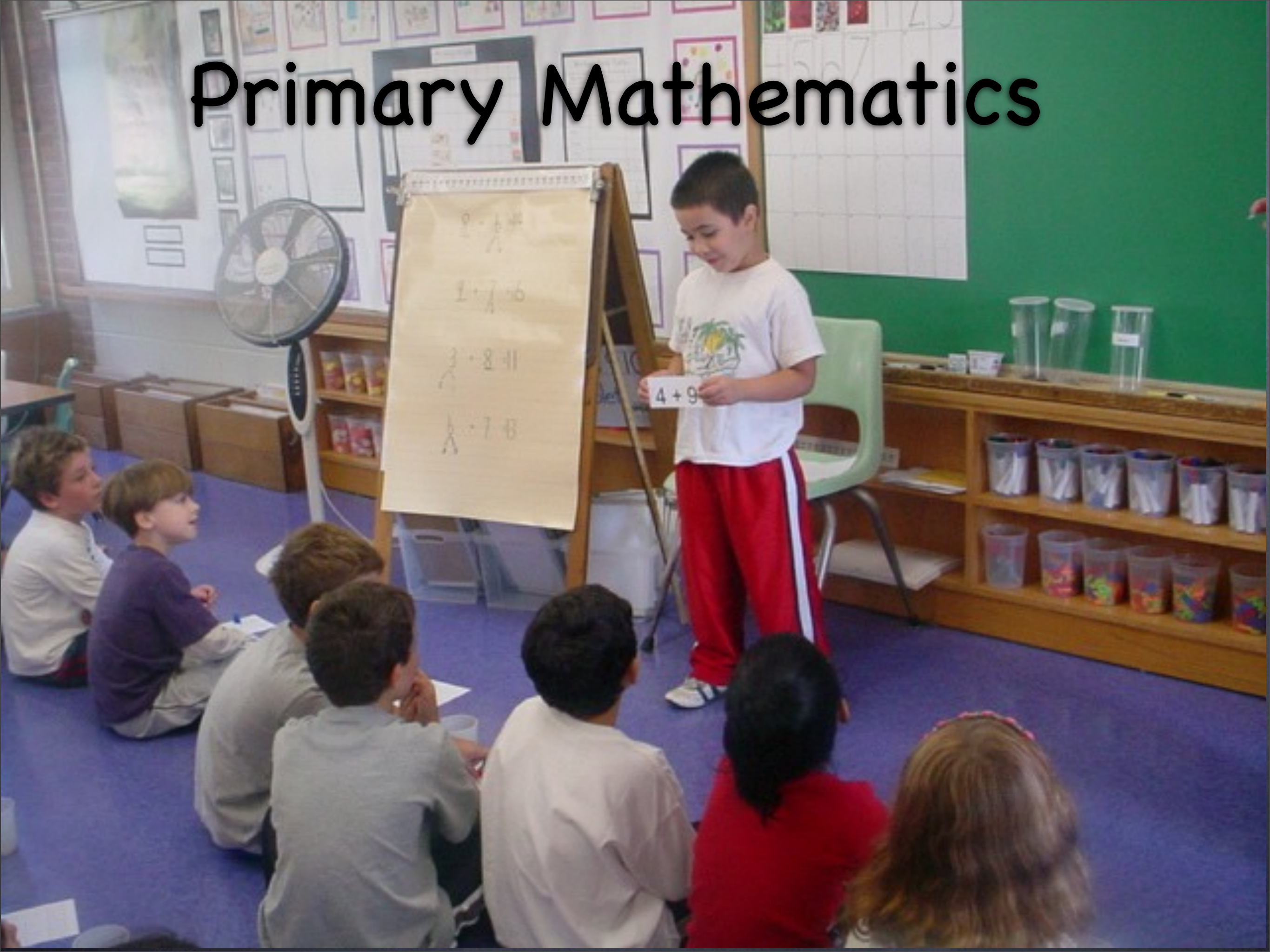


BUILDING MATHEMATICAL UNDERSTANDING

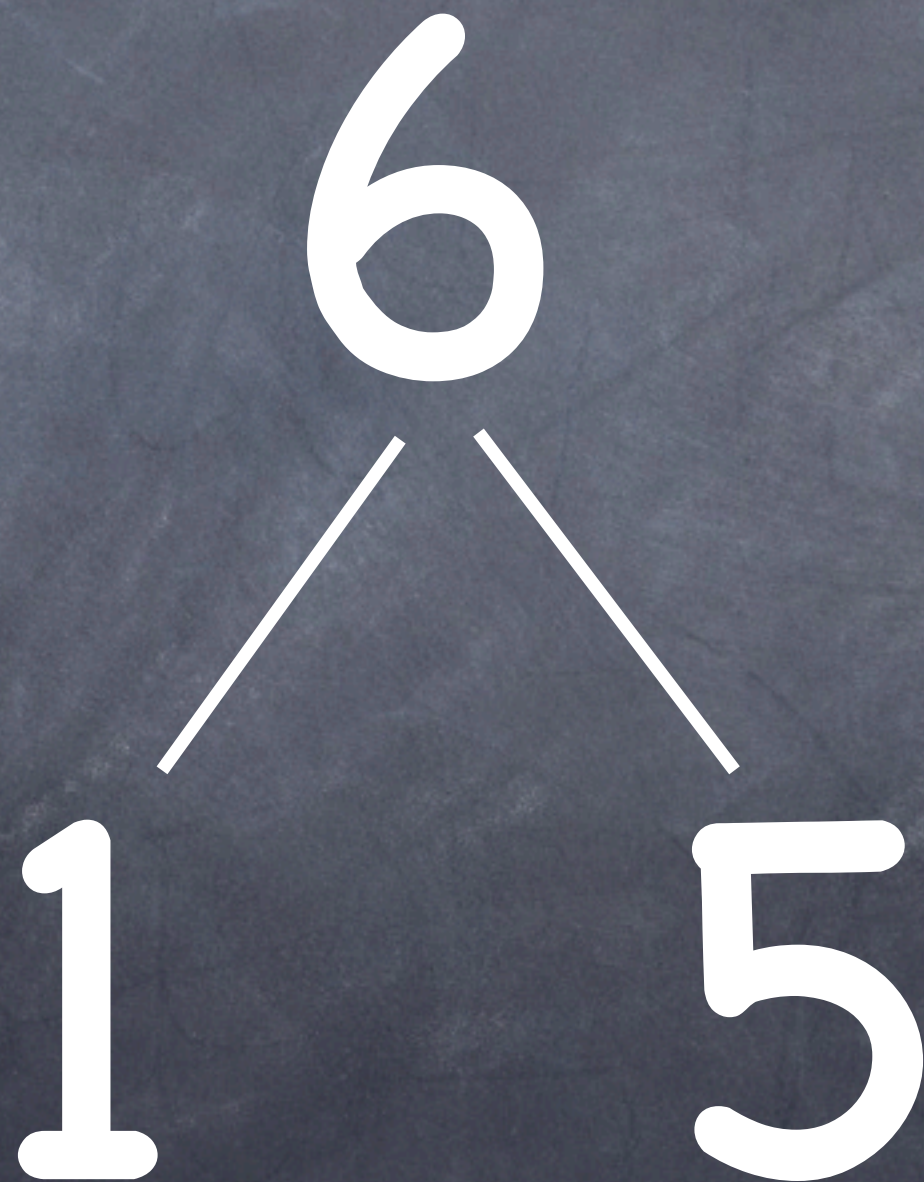
- THE INTRODUCTORY STAGE: learning the meaning of addition and moving beyond counting.



Primary Mathematics



Splitting Numbers





A diagram illustrating the decomposition of the addition problem $9 + 6$. A large white oval encloses the numbers 9 and 1. A white line connects the 6 in the top equation to the 1 in the bottom equation. Another white line connects the 6 in the top equation to the 5 in the bottom equation. This visualizes the process of borrowing 1 from 9 to make 10, and then adding the remaining 5 from the original 6.

$$9 + 6 =$$
$$10 + 5 =$$

$$10 + 5 = 15$$



What can you tell me about this number?

74



2 more than 72

3 less than 77

seventy-four

74



70

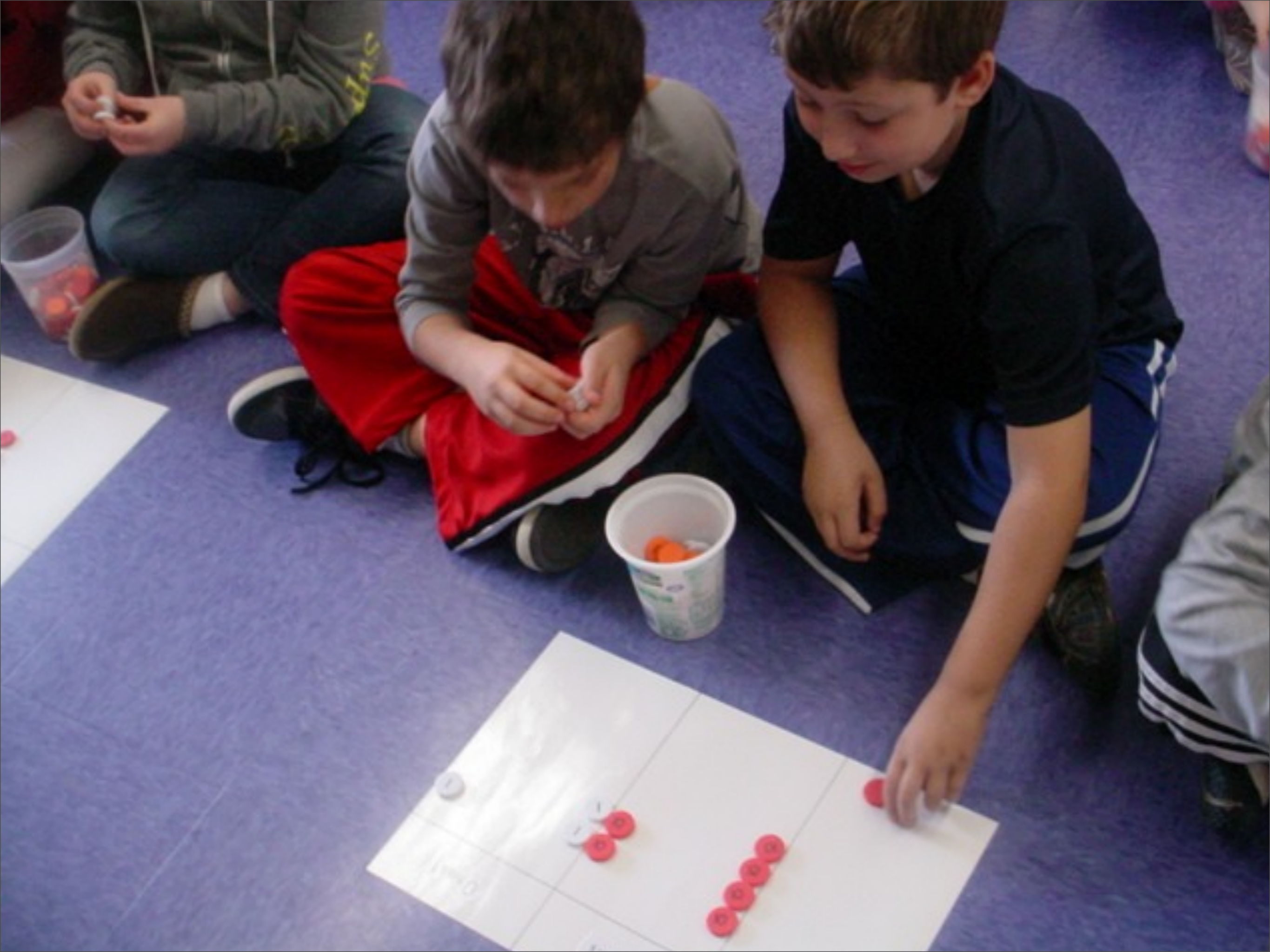
4

Tens



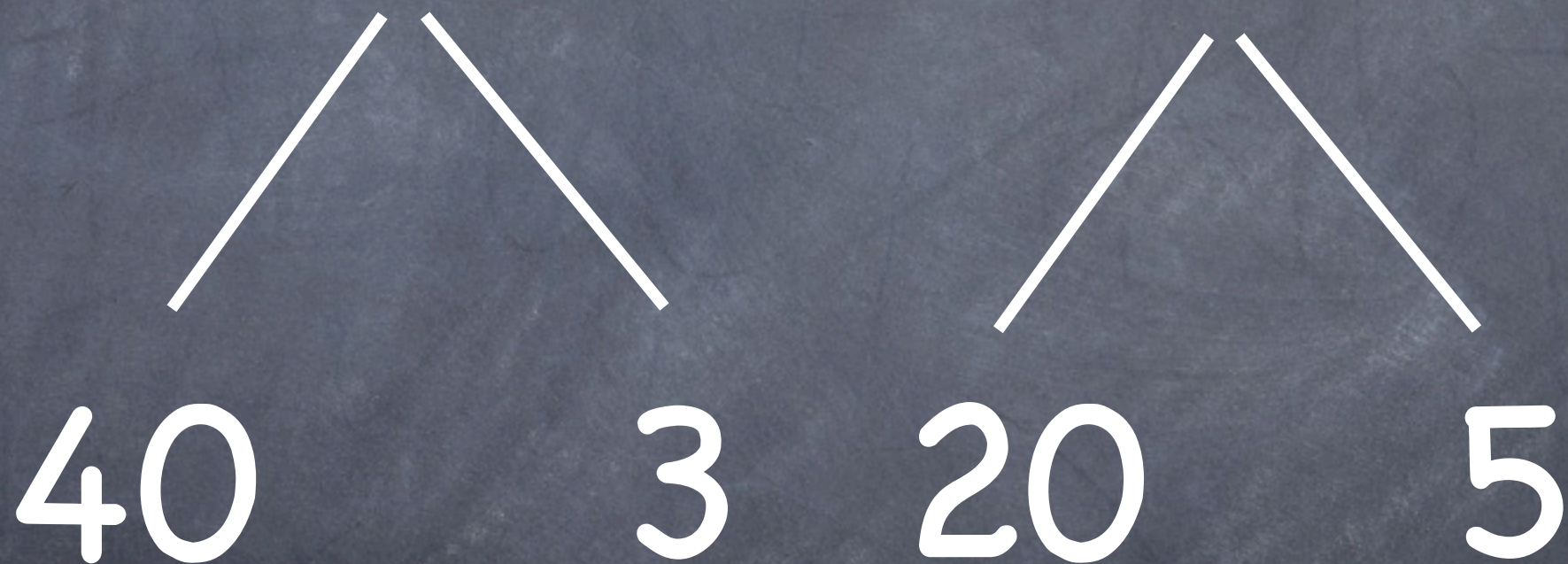
Ones





$$\begin{array}{r} 43 \\ + 25 \\ \hline 68 \end{array}$$

$$43 + 25$$



$$\begin{array}{r} 1 \\ 27 \\ + 49 \\ \hline 76 \end{array}$$

Place value disks help
students visualize
multiplication



Operations With Place Value Discs and Mat

These tools help reinforce an understanding of place value, computation, fractions, decimals, geometry, and measurement.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
			1000	100	10	1

When multiplying using rearranging, which place value do we start with?
The largest place value, in this case, the hundreds.

637×5

1000

100

10

1

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
	<div>$\times 5$</div>			<div>100</div> <div>100</div> <div>100</div> <div>100</div> <div>100</div>	<div>10</div> <div>10</div> <div>10</div>	<div>1</div> <div>1</div> <div>1</div> <div>1</div> <div>1</div> <div>1</div>

$$600 \times 5$$

What will we be multiplying first?

What is
 600×5 ?

3,000

Keep 3,000 in your head
and move to the next
place value, the
tens.

1000

100

10

1

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
			1000			
			1000			
			1000			

$\times 5$

What will you be multiplying?

30×5

What is
 30×5 ?

150

What number are you
holding in your
head?

3,000

1000

100

10

1

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
				100	10 10 10 10 10	

$\times 5$

What is $3,000 + 150$? 3,150 Keep 3,150 in your head and move to the next place value, the ones.

What will you be multiplying?
 7×5
What is 7×5 ?
35

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
					10	1
						1
					10	1
						1
					10	1

$\times 5$

1000 100 10 1

What number are you holding in your head? 3,150

What is
3,150 + 35?
3,185



Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
			1000	100	10	1
			1000		10	1
			1000		10	1
					10	1
					10	1
					10	1

Identifying the value
of each number
with place value strips

91,782

What is 10 more than your number?
91,792

What is 200 less than your number?
91,582

4000 more than your number?

Operations With Place Value Strips

- *Place value strips are key to building an understanding of place value and the value of digits.
- *Students can use them to practice addition, subtraction, multiplication, division, comparing and ordering numbers, among other skills.

What does
91,782 look like?

What is it composed
of?

Ones

2

Tens

8 0

Hundreds

7 0 0

Thousands

1, 0 0 0

Ten Thousands

9 0, 0 0 0

What is 100 more than 91,780?

1 0 0

9	1,	7	8	2
---	----	---	---	---

91,882

What is 1,000 less than 91,782?

-1, 0 0 0

90,782

9 1, 7 8 2

How can you help at home?

*Use our "Take and Makes":

- Place value mat and discs

- Place value strips

(copy, color, and laminate them with your child...have fun with it!)

*Make-up and play mathematical games with your child using your new manipulatives!

*Mathematics websites for reinforcement and practice, especially for basic facts!

(there are a ton of them out there...ask your child's teacher for quality and approved sites)

$$\begin{array}{r} 3 \overline{) 9612} \\ \underline{9000} \\ 600 \\ \underline{600} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

Division

$$\begin{array}{r} 3 \overline{) 9612} \\ \underline{9000} \\ 600 \\ \underline{600} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

Division:
Through
Understanding
Place Value

Previous Next

To Do 10/22/09

Reader Life Brochures
 Mult./Div. by 10s, 100s, 10
 Reflection
 Personal Narrative
 The Constitution
 Founding of Our Government
 If You Were There...
 TFK
 National Geographic
 Current Science
 Current Health
 Atlas Discovery
 Atlas Stories
 Maps
 The Winston Today
 Nations Project

WWECHSE

What strategy would you use
to solve this problem?

$$4816 \div 4$$

$$=$$

The Traditional Method

Does it show conceptual understanding?

$$4816 \div 4 =$$

Did you learn these steps?

divide

multiply

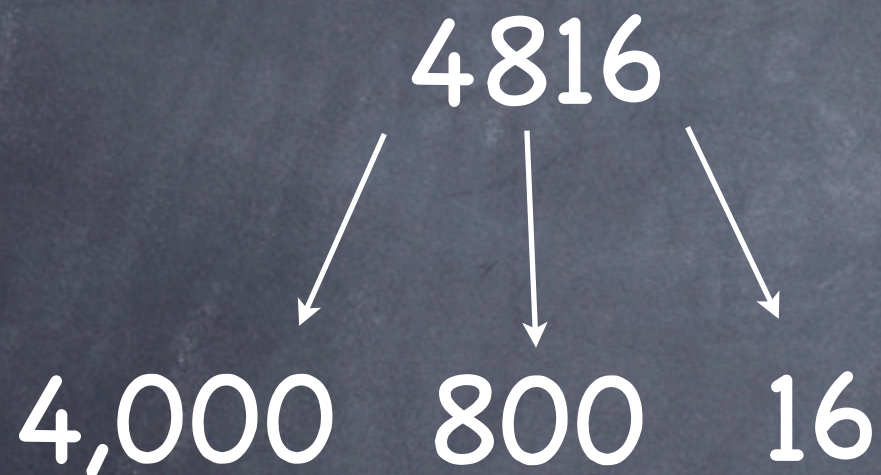
subtract

bring down

What happens
when you forget a
step?

$$\begin{array}{r} 1204 \\ 4 \overline{) 4816} \\ \underline{-4} \\ 08 \\ \underline{-8} \\ 016 \\ \underline{-16} \\ 0 \end{array}$$

Conceptual Method of Division



$$\begin{array}{r} 1000 \\ 4 \overline{) 4816} \\ \underline{-4000} \\ 816 \end{array}$$

← quantity in each group

← the amount distributed so far

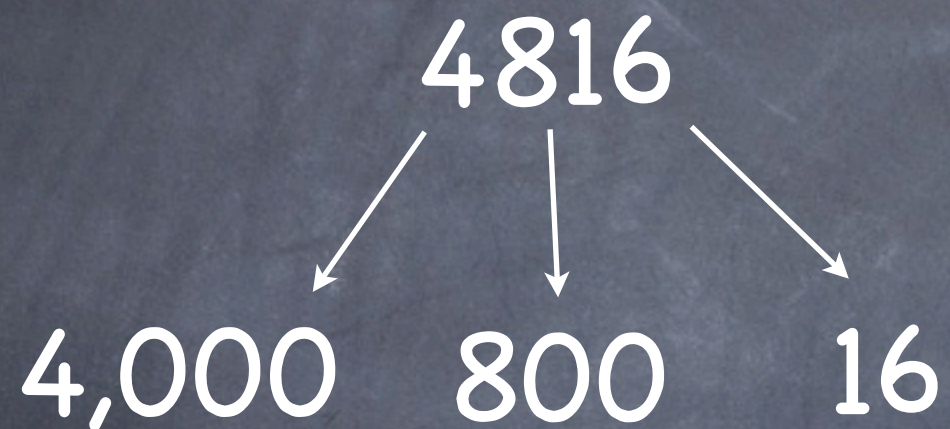
← the amount left to be distributed

Conceptual Method of Division



$$\begin{array}{r} 1200 \\ 1000 \\ \hline 4 \overline{) 4816} \\ \underline{-4000} \\ 816 \\ \underline{-800} \\ 16 \end{array}$$

Conceptual Method of Division



$$\begin{array}{r} 1204 \\ 1200 \\ 1000 \\ \hline 4 \overline{) 4816} \\ \underline{-4000} \\ 816 \\ \underline{-800} \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

Daily Schedule-A Day

Thursday, October 22, 2009

10/22/09

Pledge

Morning Work > Spanish 9:00-9:40

Math > Unit Test

Snack

Language Arts > P.E.-11:00-11:40

Lunch/Recess > 11:45-12:45

Quiet Reading

Social Studies > If You Were

There...

Science > Writer's Workshop/2:15-

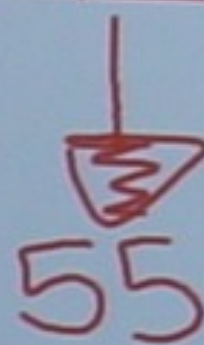
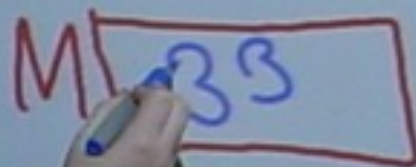
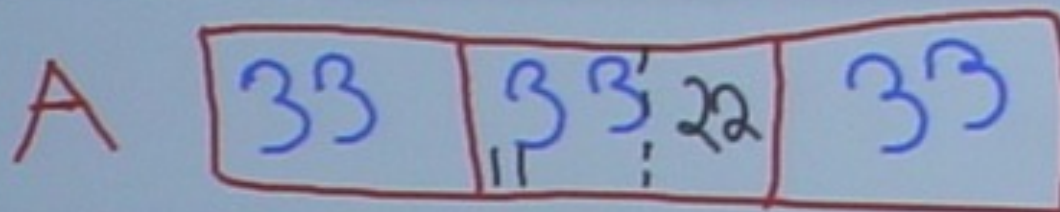
2:45-Supplies Read Aloud!

Read Aloud > The Boy

Dinosaur

Anne has three times as many beads as Mary. If Anne gives 55 beads to Mary, she will have half as many beads as Mary. How many beads do they have altogether?

132



$$\begin{array}{r}
 55 \\
 + 33 \\
 \hline
 88
 \end{array}$$

$$\begin{array}{r}
 55 \\
 - 33 \\
 \hline
 22
 \end{array}$$

$$\begin{array}{r}
 33 \\
 + 11 \\
 \hline
 44
 \end{array}$$

$$\begin{array}{r}
 44 \\
 + 88 \\
 \hline
 132
 \end{array}$$

Bar Modeling:
For Solving Word Problems

How would you solve this problem?

Sue had 6 times as many Skittles as Mark.

If Mark has 14 Skittles,
how many Skittles does Sue have?

Problem solving steps:

- Read the problem.
- Underline important information (who and what).
- Draw a bar to represent each variable and add labels.
- Add information and adjust the bars to match the problem.
- Work out the computation.
- Write a complete sentence to answer the question.

Sue had 6 times as many Skittles as Mark.
If Mark has 14 Skittles,
how many Skittles does Sue have?

How should I
set up the
bars?

What are
we doing
with these
2 numbers?

Sue

Mark



- * Read the problem.
- * Underline important information (who and what).
- * Draw a bar to represent each variable and add labels.

Sue had 6 times as many Skittles as Mark.
If Mark has 14 Skittles,
how many Skittles does Sue have?

If Mark has
one bar, how
long will
Sue's bar be?

Let's start
with one
part for Sue.
Can we add
on to that?

Sue



Mark

- * Read the problem.
- * Underline important information (who and what).
- * Draw a bar to represent each variable and add labels.

Sue had 6 times as many Skittles as Mark.
If Mark has 14 Skittles,
how many Skittles does Sue have?

Let's start
with one part
for Sue. Can
we add on to
that?

Sue 
Mark 

- * Draw a bar to represent each variable and add labels.

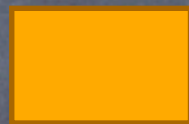
Sue had 6 times as many Skittles as Mark.
If Mark has 14 Skittles,
how many Skittles does Sue have?

Can we add
any
information
to our model?

Sue



Mark

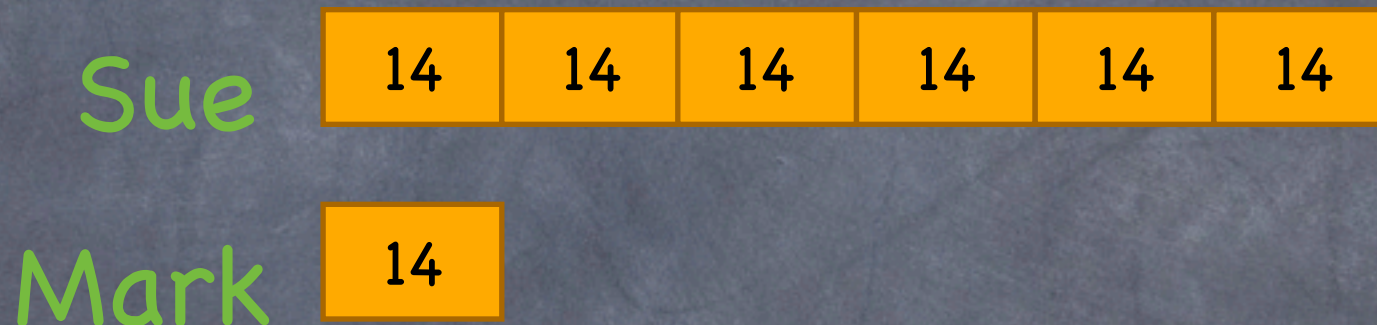


- * Draw a bar to represent each variable and add labels.
- * Add information and adjust the bars to match the problem.

Sue had 6 times as many Skittles as Mark.
If Mark has 14 Skittles,
how many Skittles does Sue have?

What am I
trying to solve.
Let's reread the
question.

What
computation
will I have to
do?
 6×14



- * Add information and adjust the bars to match the problem.
- * Work out the computation.
- * Write a complete sentence to answer the question.

Sue had 6 times as many Skittles as Mark.
If Mark has 14 Skittles,
how many Skittles does Sue have?

Sue

14

14

14

14

14

14

Mark

14

$$6 \times 14 =$$

How can I
solve
 6×14 ?

- * Work out the computation.
- * Write a complete sentence to answer the question.

Sue had 6 times as many Skittles as Mark.
If Mark has 14 Skittles,
how many Skittles does Sue have?

How can I
solve
 6×14 ?

These
strategies are
used for
students to
become
flexible with
numbers- to
compose and
decompose for
mental
calculations.

Sue

14	14	14	14	14	14
----	----	----	----	----	----

Mark

14

$$\begin{aligned} 6 \times 14 &= \\ 6 \times 10 &= 60 \\ 6 \times 4 &= 24 \\ 60 + 24 &= 84 \end{aligned}$$

$$\begin{aligned} 6 \times 14 &= \\ 7 \times 12 &= 84 \end{aligned}$$

using doubling/halving rule

- * Work out the computation.
- * Write a complete sentence to answer the question.

Sue had 6 times as many Skittles as Mark.
If Mark has 14 Skittles,
how many Skittles does Sue have?

Sue

14

14

14

14

14

14

Mark

14

$$6 \times 14 =$$

$$6 \times 10 = 60$$

$$6 \times 4 = 24$$

$$60 + 24 = 84$$

$$6 \times 14 =$$

$$7 \times 12 = 84$$

using doubling/halving rule

Sue has 84 Skittles.

- * Write a complete sentence to answer the question.
- * Reread the problem. Have I solved the problem completely and answered the question?

Check work

Have I
answered
the question
completely?