Use the four operations with whole numbers (addition, subtraction, multiplication, and division) to solve problems (Standards 4.OA.1–3).

Standard 4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, for example, by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

Key Elements: What makes a story problem multiplicative versus additive (multiplicative is groups). Solve word problems by multiplication or division with drawings and placing a variable for the unknown.

Multiplicative Comparison

Jenni has 5 times as many paintings as Nickie. Jenni has 20 paintings. How many paintings does Nickie have?
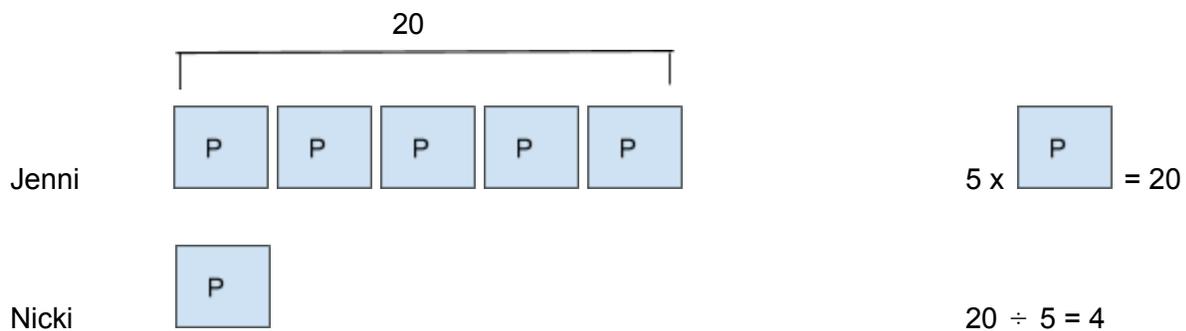
Jenni has 20 paintings so that's the total. Jenni has 5 times as many paintings so we are looking for 5 times what will give us 20. 5 times 4 will equal 20.

Multiplicative versus Additive

Keisha has 213 pins in her collection. Fran has 78 more pins in her collection. How many pins does Fran have in her collection?
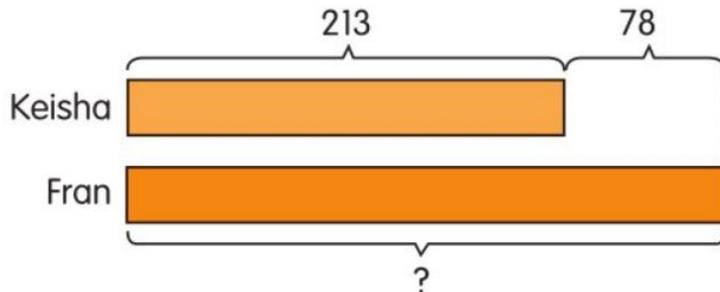
213 + 78 = P

Keisha has 213 pins but Fran has 213 pins plus 78 more; this is what Fran's bar represent. To find Fran's total its 213 plus 78.

There are 21 students in Mrs. Green's class. There are 7 times more girls than boys. How many boys are in Mrs. Green's class?
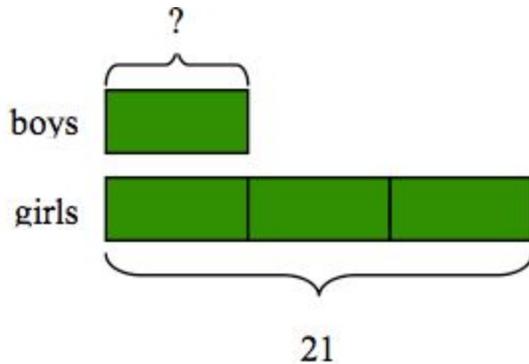
21 ÷ 7 = B or 7 x B = 21

There are 7 times as many more girls than boys but the total of students is 21. By taking 21 divide 7 it will give how many boys are in the class.

Word Problem Strategy for all operations

Read the question-Read it very carefully

Underline

      B- Box the Question

      U- Underline important words-key words and labels

      C- Circle the numbers

      K- Kick out extra information

Plan- Select an appropriate strategy

Draw a picture
Write an equation
Use manipulatives
Solve-Label answer
Does your answer make sense?

Steps to Problem Solving

Read #1
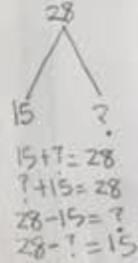
There are (15) girls and some boys in our class. There are (28) students in our class. How many are boys?
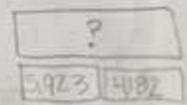
28
/\
15   ?

15+?=28
?+15=28
28-15=?
28-?=15

B.U.C.K.
B— Box the question
U— Underline important words — key words, labels
C— Circle the numbers
K— Kick out extra info.

underline #2

Plan #3

[?]
[5,923] [4,182]

5,923+4,182=?

11
5,923
+ 4,182
10,105

Solve #4

? = 10,105 collected

19

Steps to Problem Solving

First — Read the
Question carefully!

There are (15) girls and
some boys in our
Class. There are (28)
students in our class.
How many are boys?

underline:
numbers, Keywords

2-Next — read &
underline important
information

- key words, labels
circle the numbers
- Kick out extra info

28

15   ?

$15 + ? = 28$
$? + 15 = 28$
$28 - 15 = ?$
$28 - ? = 15$
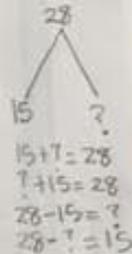
- Draw a picture
- Write an equation
- Use manipulatives

3. Then — develope a
plan & select
appropriate strategy

| ? |

| 5923 | 4182 |
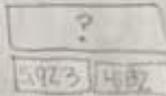
$5923 + 4182 = ?$

Does my
answer make
sense?

4. Last — Solve &
LABEL!

$? = 10,105$ collected

19

	Unknown Product	Group Size Unknown ("How many in each group?" Division)	Number of Groups Unknown ("How many groups?" Division)
	$3 \times 6 = ?$	$3 \times ? = 18$, and $18 \div 3 = ?$	$? \times 6 = 18$, and $18 \div 6 = ?$
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? *Measurement example.* You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? *Measurement example.* You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? *Measurement example.* You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?
Arrays,[4] Area[5]	There are 3 rows of apples with 6 apples in each row. How many apples are there? *Area example.* What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? *Area example.* A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? *Area example.* A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs $6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? *Measurement example.* A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs $18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost? *Measurement example.* A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?	A red hat costs $18 and a blue hat costs $6. How many times as much does the red hat cost as the blue hat? *Measurement example.* A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?
General	$a \times b = ?$	$a \times ? = p$, and $p \div a = ?$	$? \times b = p$, and $p \div b = ?$