Addition & Subtraction

WORD PROBLEMS

BY PROBLEM TYPE



156 WORD PROBLEMS

KEEP SCROLLING TO TAKE A LOOK INSIDE THE RESOURCE!

WHY TEACH WORD PROBLEMS BY PROBLEM TYPE?

Teach students to read a word problem for comprehension and context



Stop Searching for the Answer

by removing the numbers

& teach students to discover the relationship of the numbers before diving into the computation



Keep scrolling for a FREE Sample of the Word Problems by Problem Type

WHAT ARE THE PROBLEM TYPES FOR ADDITION & SUBTRACTION?

Addition and Subtraction problems can be classified by the type of action or relationship described in the problems. This classification is a way to help children think about the action in the problem and understand the situation or context.

There are four basic classes of problems:

- Join,
- Separate,
- Part-Part-Whole, and
- Compare.

Within each of those classifications are distinctions of which part of the problem is unknown.

Helping students understand how to write an appropriate number sentences and understanding which part of the problem is unknown is key. Students must understand what they are solving.

Problem Types for Addition & Subtraction

Join

- Join Result Unknown (JRU)
- Join Change Unknown (JCU)
- Join Start Unknown (JSU)

Separate

- Separate Result Unknown (SRU)
- Separate Change Unknown (SCU)
- Separate Start Unknown (SSU)

Part-Part-Whole

- Whole Unknown (WU)
- Both Addends Unknown (Possible Combinations) (BAU)
- Part Unknown (PU)

Compare

- Difference Unknown (DU)
- Compare Quantity Unknown (CQU)
- Referent Unknown (RU)

12 word problems for each problem type

156 word problems

plus two-step word problems

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Problem Types for Addition & Subtraction

Join and Separate problems have a direct action.

Join Result Unknown (JRU)	Join Change Unknown (JCU)	Join Start Unknown (JSU)
9 + 4 = _____	9 + _____ = 13	_____ + 4 = 13

Separate Result Unknown (SRU)	Separate Change Unknown (SCU)	Separate Start Unknown (SSU)
13 - 4 = _____	13 - _____ = 9	_____ - 4 = 9

Part-Part-Whole problems do not have a direct action, instead they describe a relationship between <u>one set of objects</u> (i.e.: blue and green balloons).

Part-Part-Whole: Whole Unknown (WU)	Part-Part-Whole: Both Addends Unknown	Part-Part-Whole: Part Unknown (PU)
9 + 4 = _____	13 = _____ + _____	9 + _____ = 13

Compare problems compare two <u>separate sets</u> of objects (even if it is the same type of object, as in two children comparing how many marbles they have.).

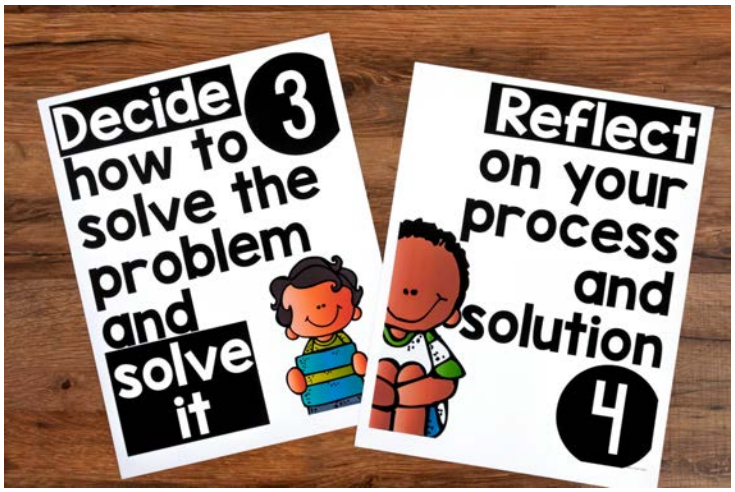
Compare: Difference Unknown	Compare: Quantity Unknown (QU)	Compare: Referent Unknown (RU)

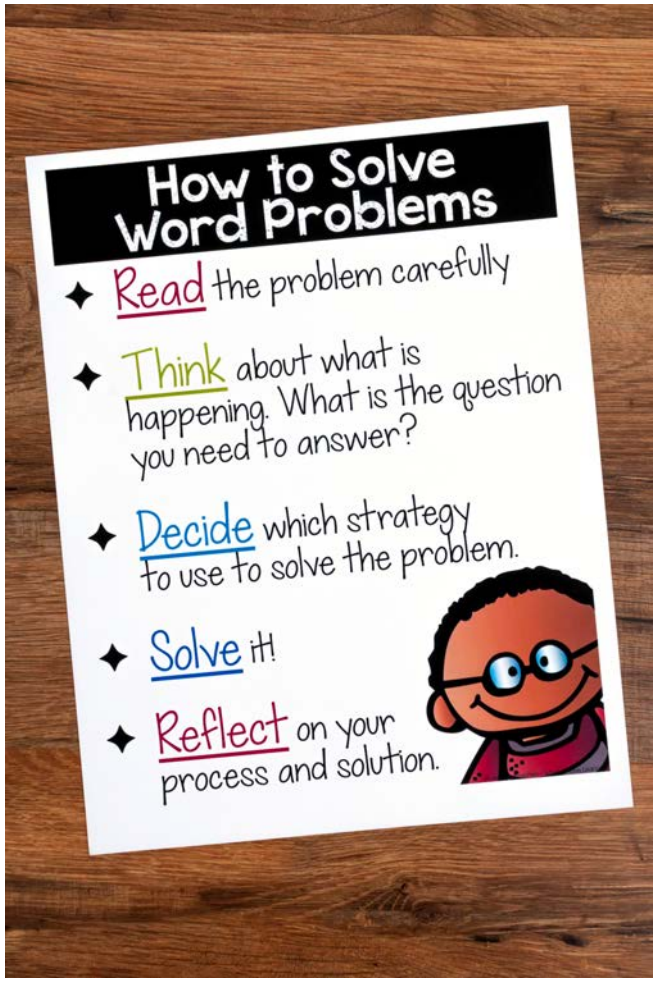
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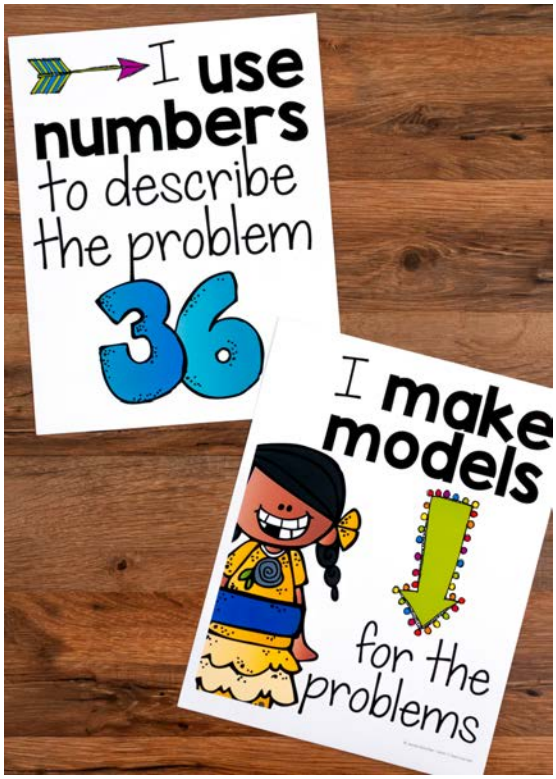
What's Included

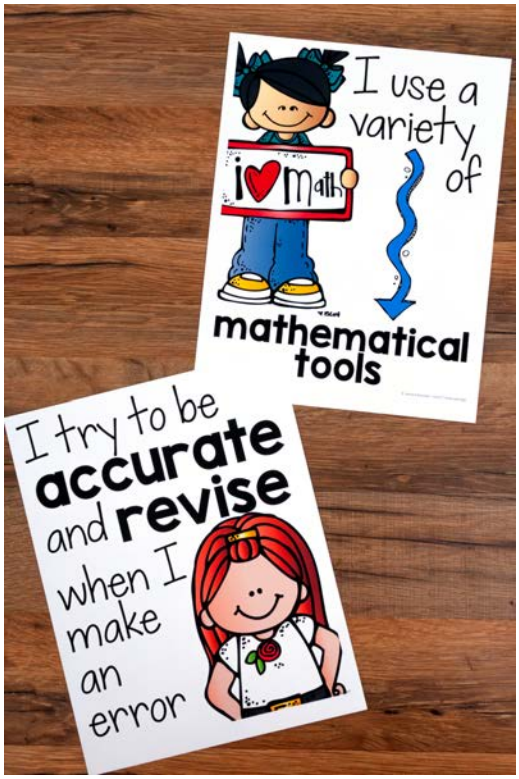
✦ Posters for procedures, models and strategies to use when solving







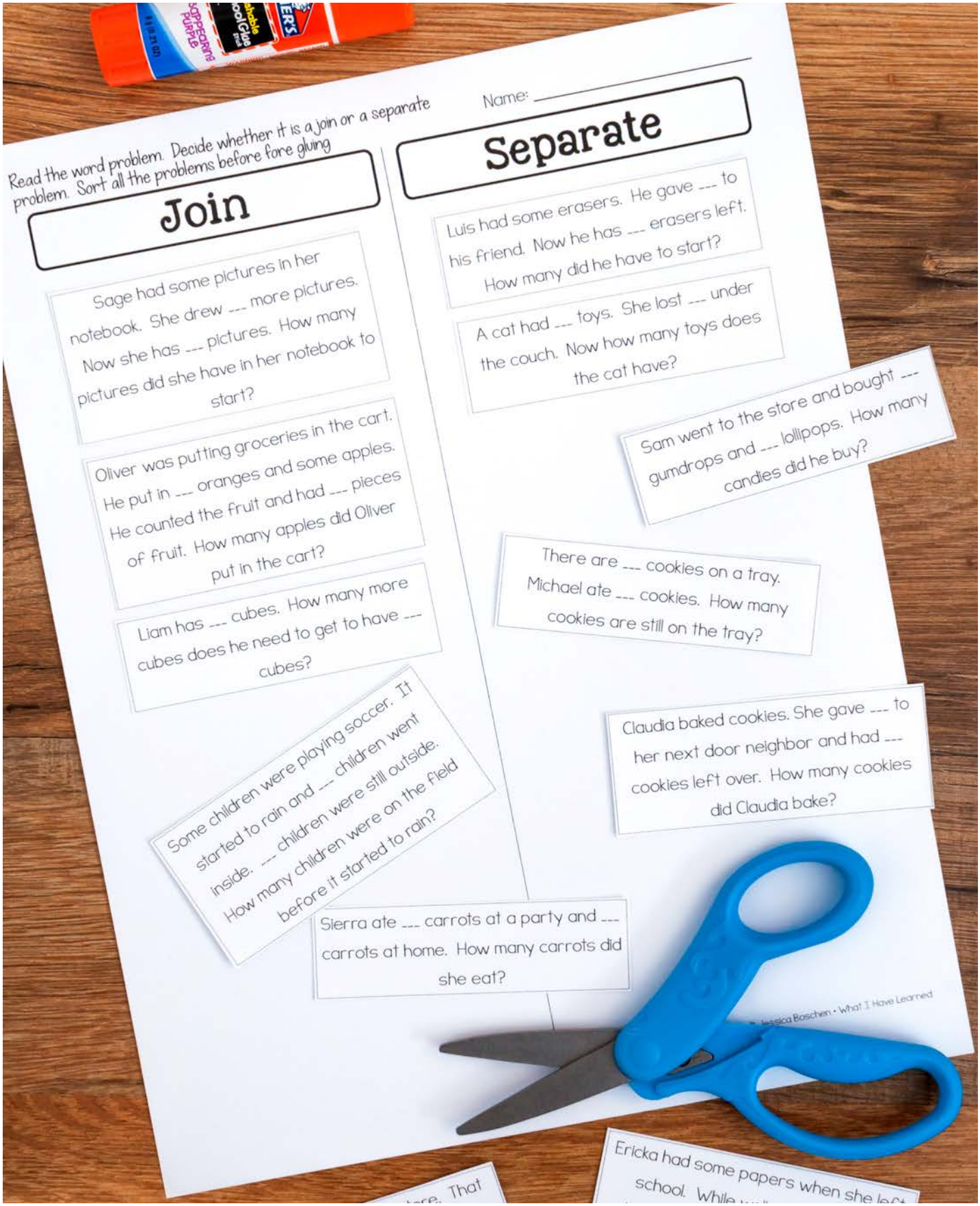






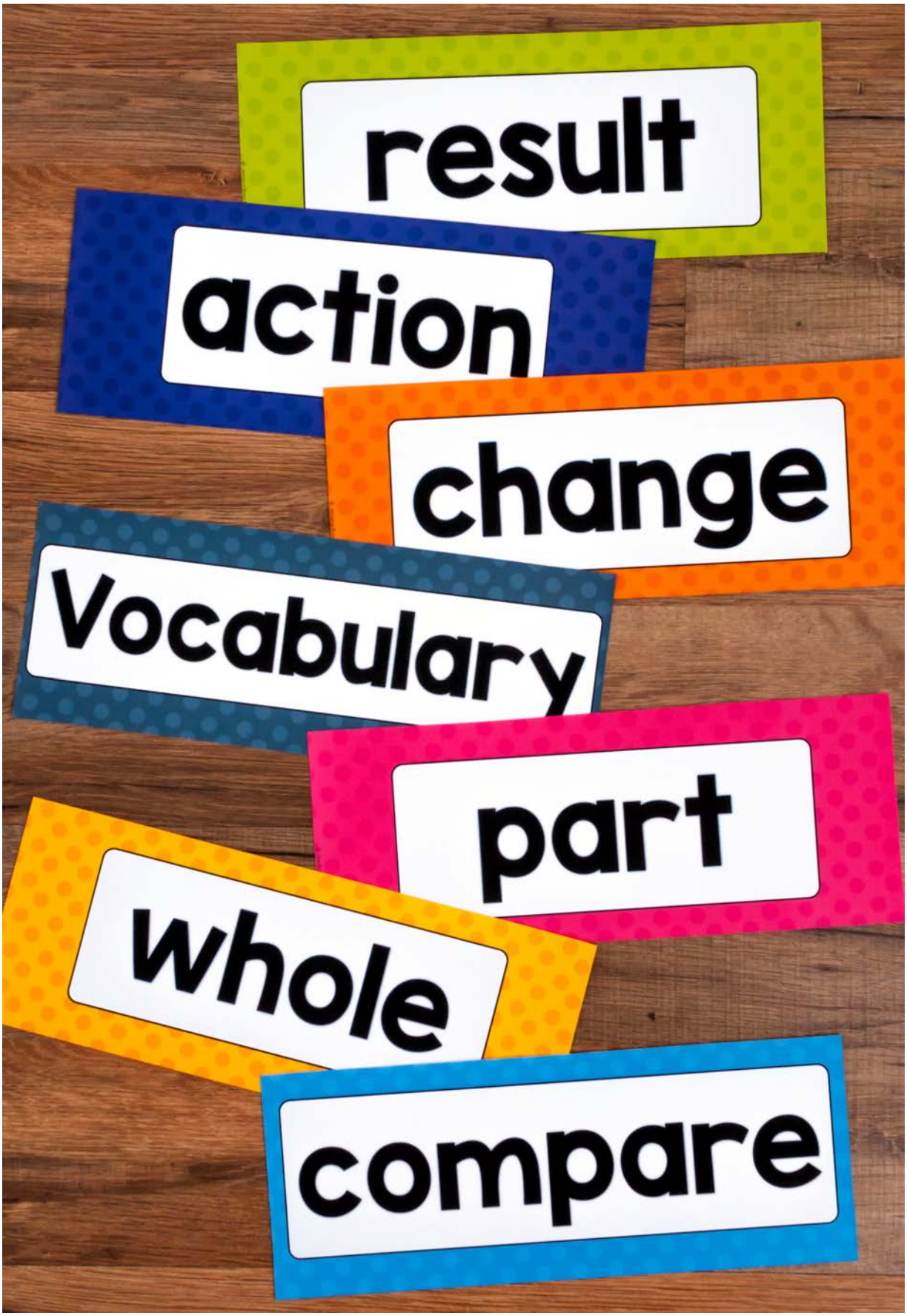
What's Included

✦Sort by Problem Type



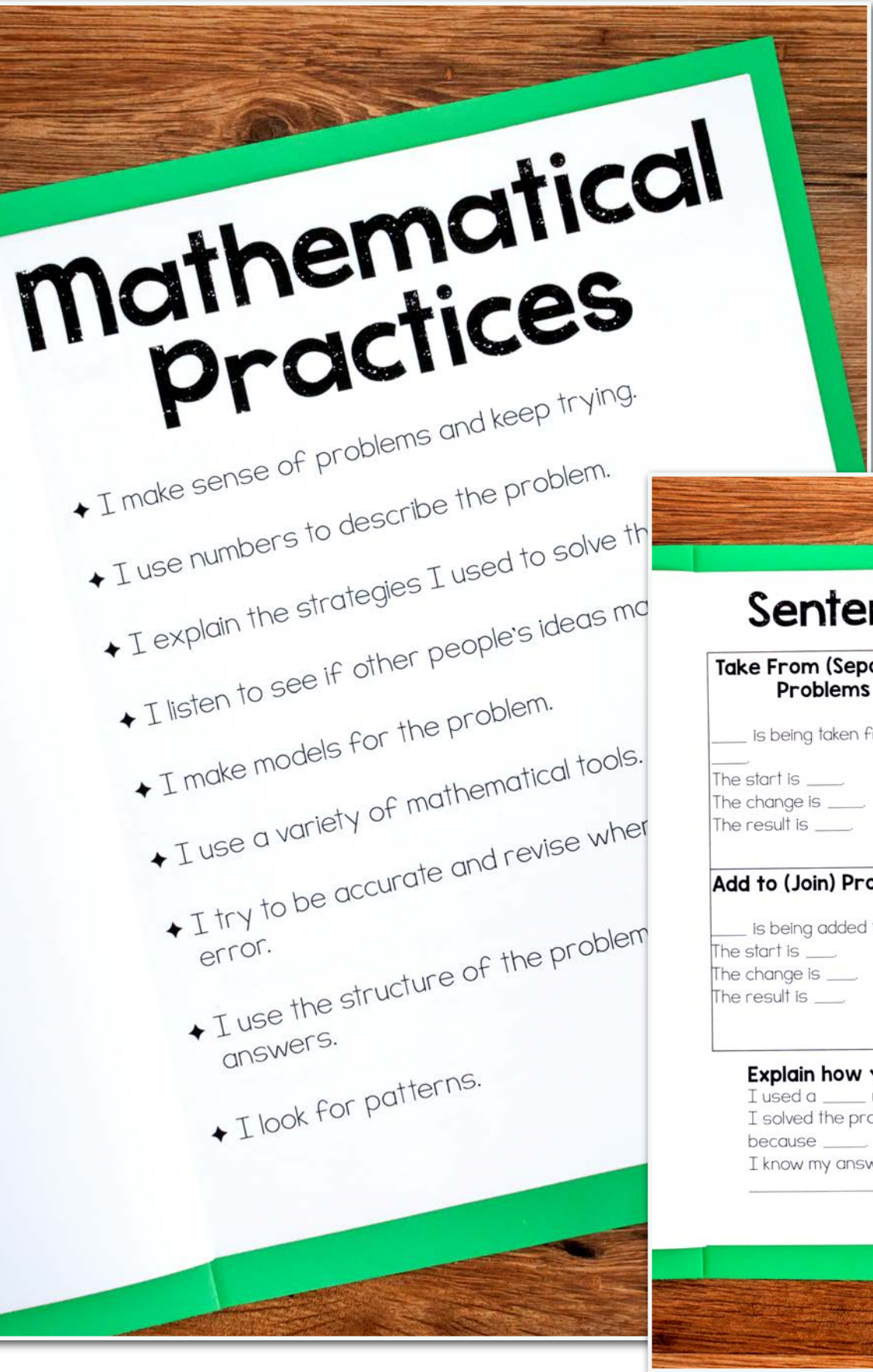
What's Included

✦Vocabulary cards for problem solving

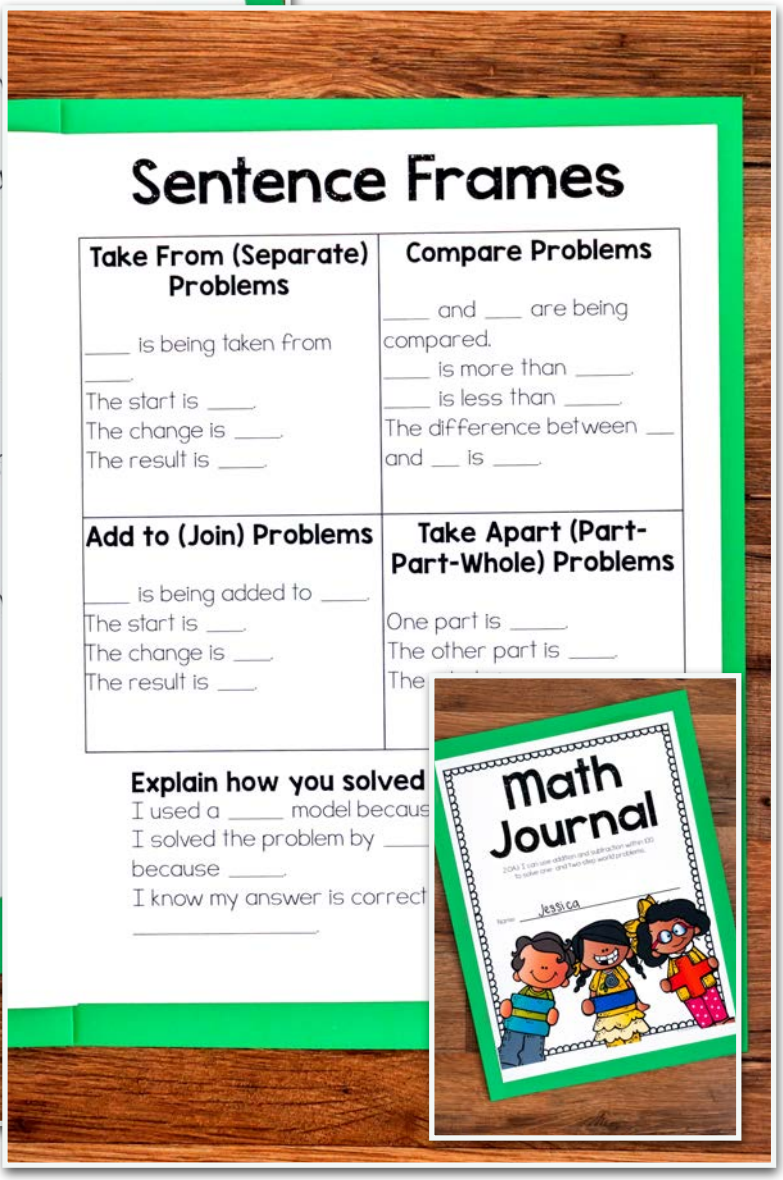


What's Included

✦ Journal Pages & Rubric

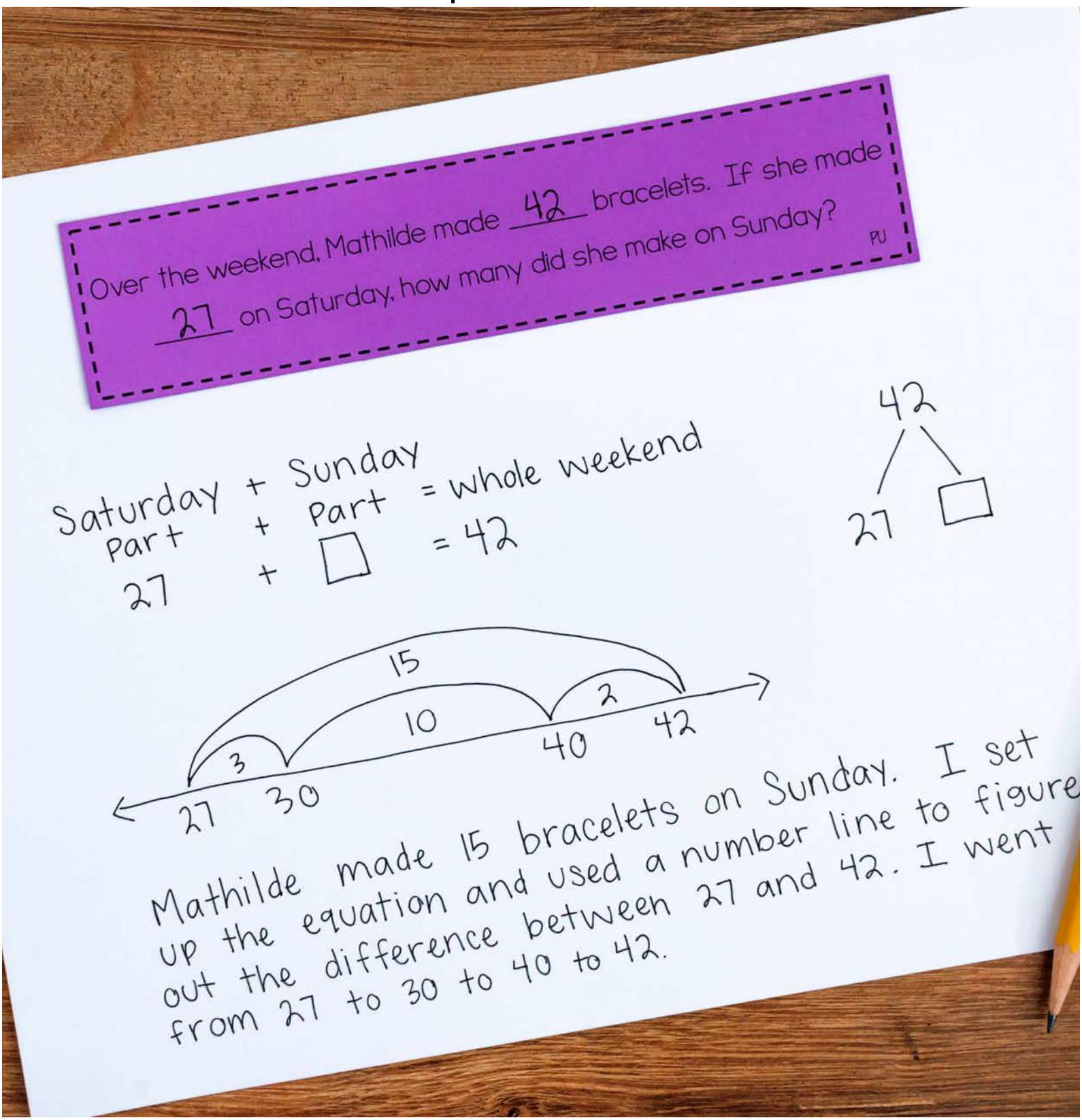






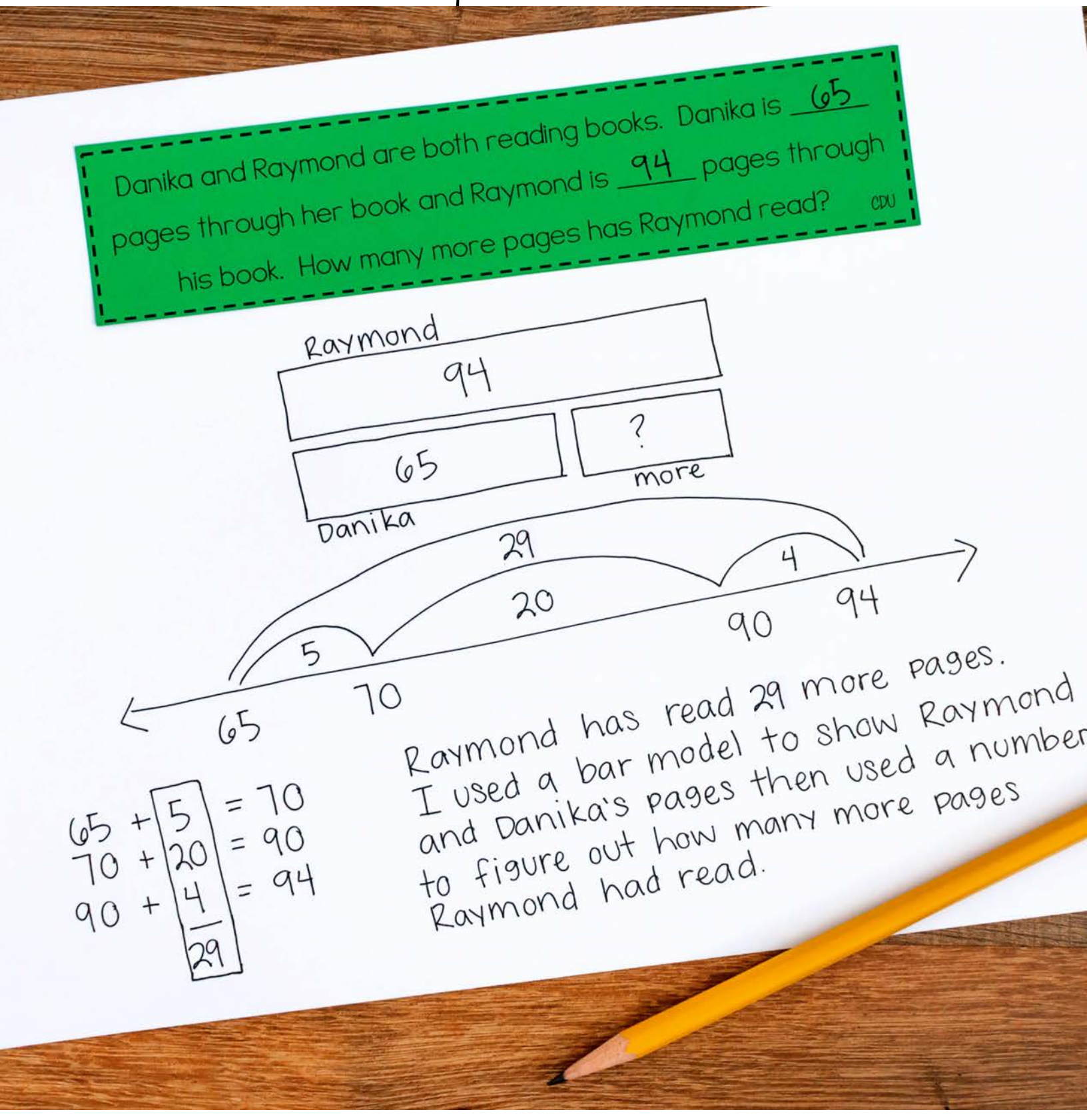
What's Included

✦12 different word problems for each type of addition and subtraction problem. Plus 12 multi-step word problems for a total of 156 word problems.



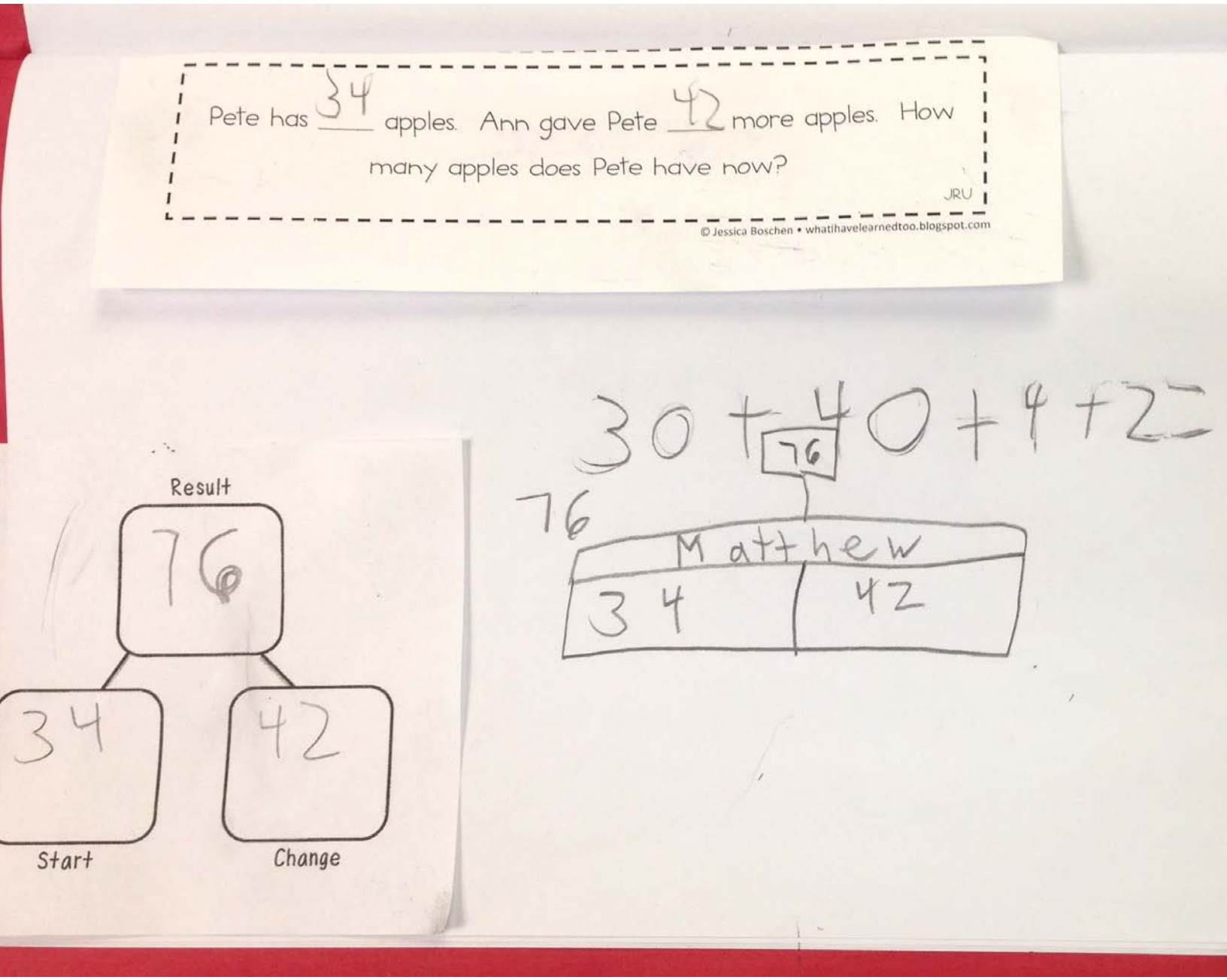
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This is a second grade example. I had taught students how to use the inverted-v model with smaller numbers (sums less than 20) and was transitioning them to using the bar model with larger numbers.

The student use an inverted-v and a bar model as the models, but the {computation} strategy the student used to solve the problem was to break apart the numbers.

This example illustrates the importance of making a distinction between procedures, models, and strategies.

Separate Problems

Name: _____

Ashley had some crackers. She gave 14 away to Timothy.
Now she has 28 crackers.
How many crackers did she have to start with?

start - change = result
☐ - 14 = 28



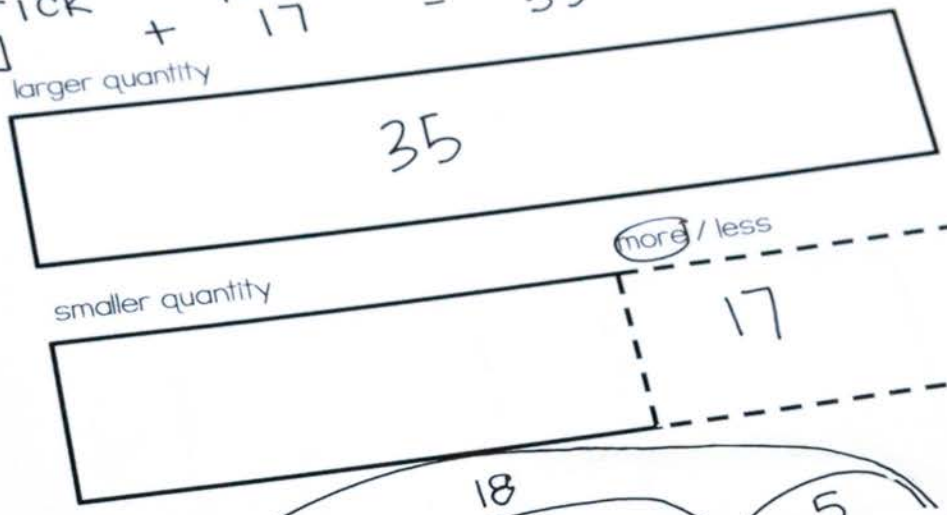
Compare Problems

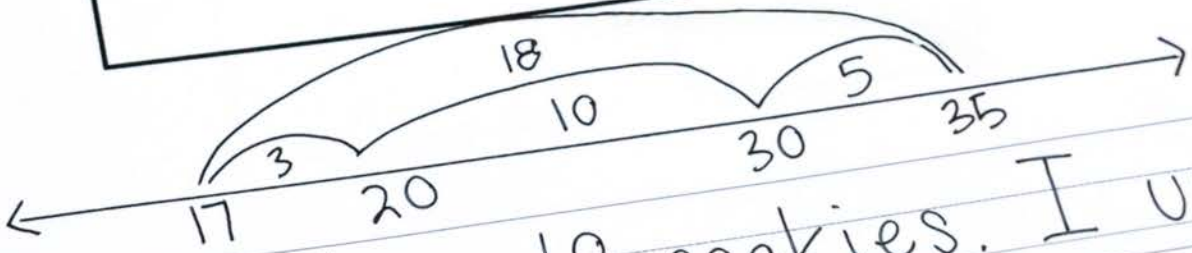
Name: _____

Samuel has 35 cookies. He has 17 more cookies than Patrick. How many cookies does Patrick have?

Patrick + more 17 = Samuel 35

□





Patrick has 18 cookies. I us
a number line. I started at
and moved down the number
to get to 17. Then I added my

Join Problems

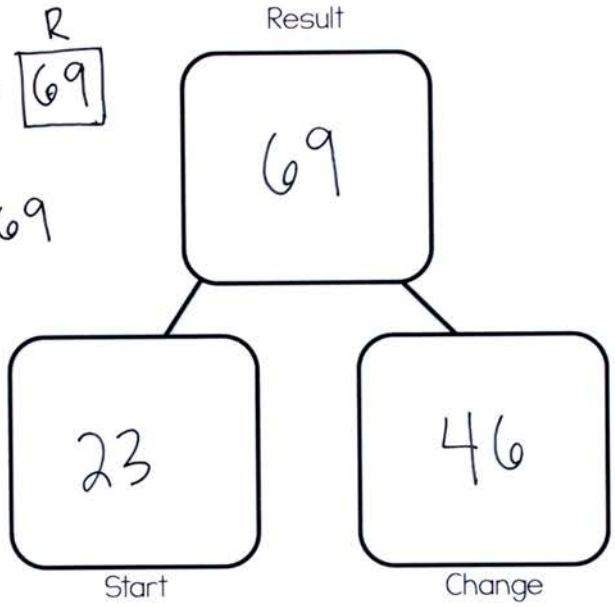
Name: _____

Jane was shopping and put 23 items in her cart. She checked her list put 46 more items in her cart. How many items does she have now?

JRJ

S C R
23 + 46 = 69

60 + 9 = 69



The problem started with 23. I added 46 by adding the tens then adding the ones. Jane has 69 items in her cart.

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Multiplication & Division

Word Problems

Grouped by Problem Type



A word about Problem Types

There are three basic classes of Multiplication and Division problem types: Equal Groups, Arrays / Area and Compare. Within each of those classifications are distinctions of which part of the problem is unknown, thus becoming a multiplication or division problem.

In equal groups, each factor has a different role, either the number of objects or the number of groups. In arrays, the roles of the facts do not matter.

Multiplication Compare situations are more complex than Equal Groups and Arrays, and must be distinguished from Addition Compare problems. I have included a sorting activity where students can identify the problem type. Multiplicative comparison start in fourth grade.

Measurement problems are more difficult because they do not focus on countable objects. Students should be introduced to the measurement problems after developing fluency with problems that include discrete, countable objects. Measurement problems are included for all problem types.

Along with the problem types, students should be developing a deeper understanding of the properties of multiplication and how they relate to the context of the problem. The properties of multiplication are not explicitly taught, but they are a strategy students can use to solve the problem. These problems can also be extended to develop understanding of patterns, factors, multiples, and prime and composite numbers.

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Problem Types

The following problem types represent common multiplication and division situations. The labels in parenthesis are the same labels on the bottom of each problem that you will print for students. You can use this page as a sort of key for the printed problems to identify problem type.

9 x 4 = ___	9 x __ = 36 or 36 ÷ 9 = __	__ x 4 = 36 or 36 ÷ 4 = __

Equal Groups

Equal Groups: Unknown Product (EG–UP)	Equal Groups: Group Size Unknown (EG–GSU)	Equal Groups: Number of Groups Unknown (EG–GU)

Arrays / Area Models

Arrays / Area Unknown Product (AA–UP)	Arrays / Area Group Size Unknown (AA–GSU)	Arrays / Area Number of Groups Unknown (AA–GU)

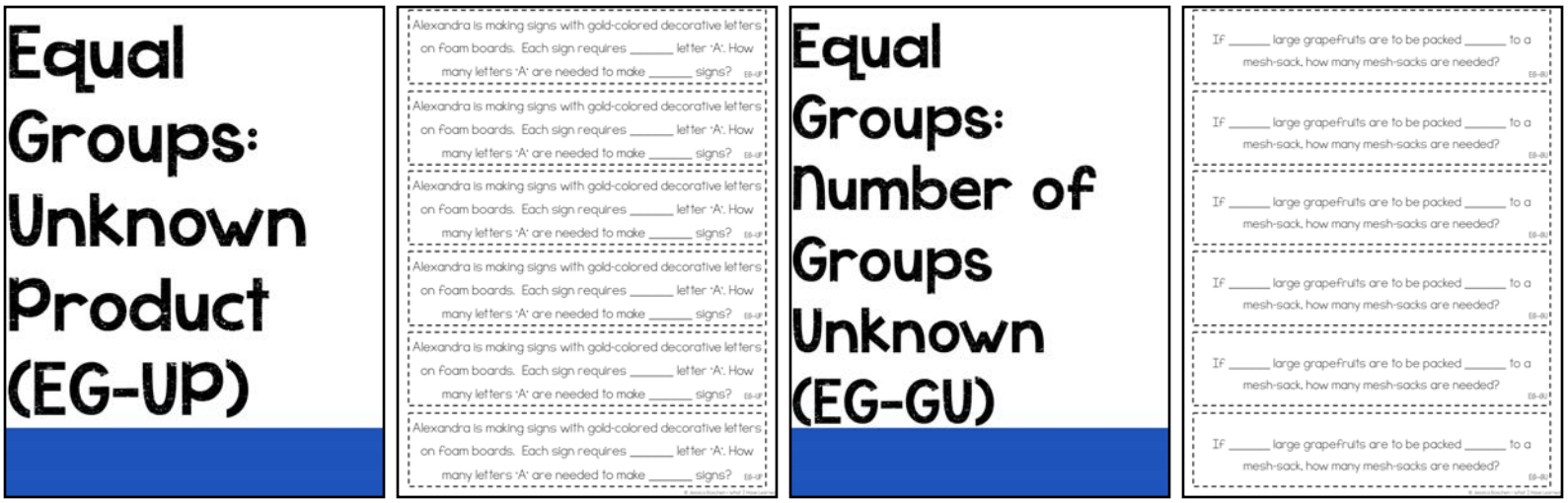
Compare

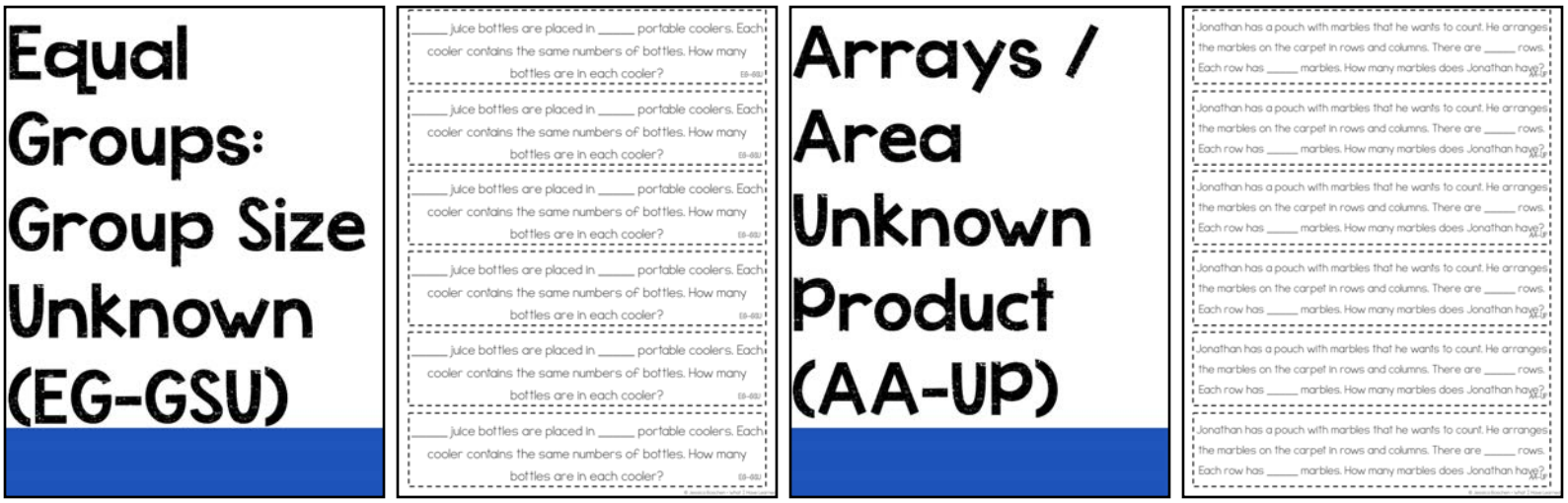
Compare: Unknown Product (C–UP)	Compare: Group Size Unknown (C–GSU)	Compare: Number of Groups Unknown (C–GU)

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90 Different Problems by Problem Type with Blanks Spaces

in two formats for Classroom and Homeschool





Arrays / Area Group Size Unknown (AA-GSU)

A group of _____ soldiers is marching in rectangular formation. There are _____ rows. How many soldiers are in each row? AA-GSU

A group of _____ soldiers is marching in rectangular formation. There are _____ rows. How many soldiers are in each row? AA-GSU

A group of _____ soldiers is marching in rectangular formation. There are _____ rows. How many soldiers are in each row? AA-GSU

A group of _____ soldiers is marching in rectangular formation. There are _____ rows. How many soldiers are in each row? AA-GSU

A group of _____ soldiers is marching in rectangular formation. There are _____ rows. How many soldiers are in each row? AA-GSU

A group of _____ soldiers is marching in rectangular formation. There are _____ rows. How many soldiers are in each row? AA-GSU

Compare Group Size Unknown (C-GSU)

Peter has _____ marbles, which is _____ times more than Joseph has. How many marbles does Joseph have? C-GSU

Peter has _____ marbles, which is _____ times more than Joseph has. How many marbles does Joseph have? C-GSU

Peter has _____ marbles, which is _____ times more than Joseph has. How many marbles does Joseph have? C-GSU

Peter has _____ marbles, which is _____ times more than Joseph has. How many marbles does Joseph have? C-GSU

Peter has _____ marbles, which is _____ times more than Joseph has. How many marbles does Joseph have? C-GSU

Peter has _____ marbles, which is _____ times more than Joseph has. How many marbles does Joseph have? C-GSU

Arrays / Area Number of Groups Unknown (AA-GU)

Mrs. Smith has a small garden with tomato plants. She has _____ plants arranged into regular rows. There are _____ plants in each row. How many rows are there? AA-GU

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Compare Number of Groups Unknown (C-GU)

An advanced video game costs $_____. A basic video game costs $_____. How many basic video games can one buy for the price of one advanced video game? C-GU

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Compare Unknown Product (C-UP)

Joe has _____ blue marbles. He has _____ times more red marbles than blue marbles. How many red marbles does he have? C-UP

Joe has _____ blue marbles. He has _____ times more red marbles than blue marbles. How many red marbles does he have? C-UP

Joe has _____ blue marbles. He has _____ times more red marbles than blue marbles. How many red marbles does he have? C-UP

Joe has _____ blue marbles. He has _____ times more red marbles than blue marbles. How many red marbles does he have? C-UP

Joe has _____ blue marbles. He has _____ times more red marbles than blue marbles. How many red marbles does he have? C-UP

Joe has _____ blue marbles. He has _____ times more red marbles than blue marbles. How many red marbles does he have? C-UP

Multi-Step Problems

Her parents asked Andrea to prepare outgoing mail for their relatives overseas. She prepared ____ smaller envelopes which cost $____ each to mail. She also prepared ____ large envelopes which cost $____ each to mail. How much is the total postage to mail all these letters? MU-EB-UP

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BY PROBLEM TYPE





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WORD PROBLEMS BY PROBLEM TYPE SAMPLE