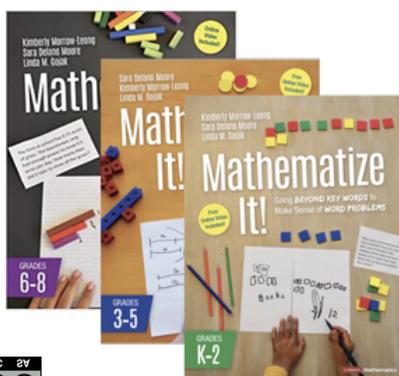
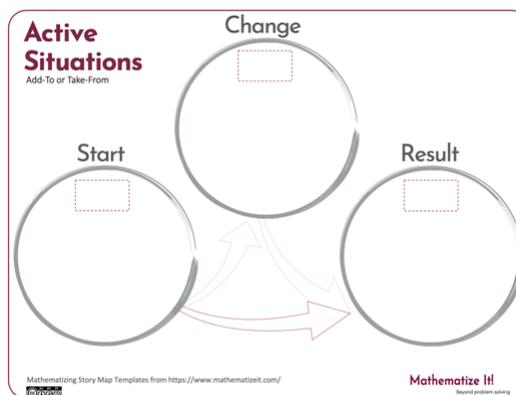
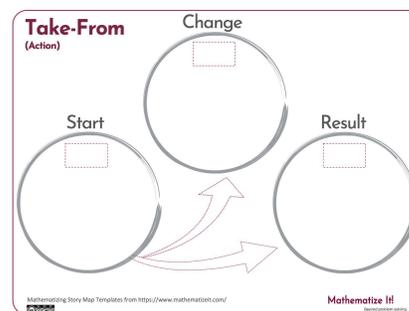
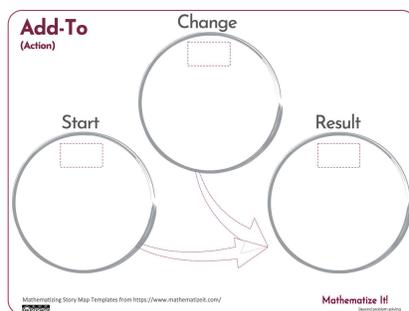




Addition and Subtraction Summary

Making sense of word problems with mathematical comprehension & operation sense.

Mathematizing Story Maps



Mathematize It!

Beyond problem solving



Sara Delano Moore and Kimberly Morrow-Leong

Mathematizing Story Map Templates from <https://www.mathematizeit.com/>

Teacher Notes

Mathematizing Story Maps

Addition & Subtraction Summary



Problem Types

There are four different types that represent all addition or subtraction: Add-To, Take-From, Part-Part-Whole, and Additive Comparison. A Mathematizing Story Map for each, including practice problems, is on our website. Now we look at all four as two separate groups.

Action

The problems in the first group need to be acted out: something moves into the situation (Add-To) or is moved out (Take-Out). These can be called Active (or Action) problem types.

Relationship

The remaining two problem types *feel* different. They describe relationships between the quantities in the problem. A comparison describes how one thing compares to another, or how it measures up. A Part-Part-Whole situation looks at a set of objects that make up a whole set and describes how these objects are the same, but also measures their differences.

Action Situations	Add To	Result Unknown	Change Unknown	Start Unknown
	Take From	Result Unknown	Change Unknown	Start Unknown
Relationship Situations	Part-Part Whole	Total Unknown	One Part Unknown	Both Parts Unknown
	Additive Comparison	Difference Unknown	Greater Quantity Unknown	Lesser Quantity Unknown

Missing Element

For each of the problems situations one element is typically unknown. For the Action problem types, the story has a start, a change, and an end result. In a Relationship problem situation, the missing elements could be one of the parts or the whole in a Part-Part-Whole, or in the case of the Additive Comparison, the difference, or one of the two compared quantities.

The Mathematizing Story Maps

The two story maps shared this week are more general. One story map helps track the action—it provides the narrative arc for action situations, showing the start, the change, and the result. The other story map uses a bar model to show the relationship among the parts or the comparison under exploration.

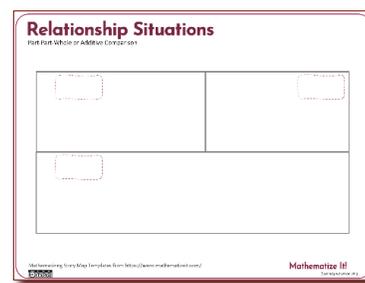
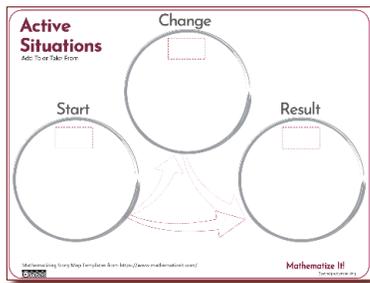
Mathematizing Story Maps by Sara Delano Moore & Kimberly Morrow-Leong

Find more at mathematizeit.com



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Common Structure and Strategies

Begin by reading the story at least once with your class. Talk about the story and support your students as they make sense of the events in the story as you would for any narrative. Then encourage students to find the mathematics in the story with questions like these:

- *Is there action in this story? Is something coming or going?*
- *Does this story compare quantities, sharing which is greater or which is lesser?*
- *Does this story talk about groups or parts of a group that can be combined into a whole?*

These questions ask students to reason about which story map might best support a. If students start calculating numbers right away, particularly if they are “number-plucking” or randomly doing calculations, refocus their attention on the relationship in the story.

Maya’s brother wanted to buy some plants for his goldfish bowl. He spent \$1.75 on plants and then counted his money. He had \$3.50. How much money did he have before he bought the plants?

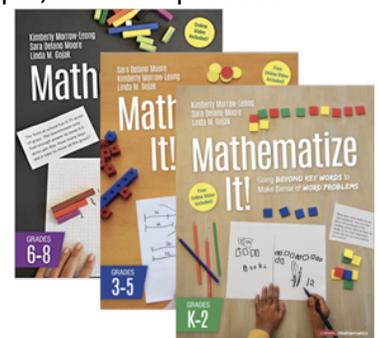
Different Classes of Number

These practice problems represent some of the many addition and subtraction problems situations in contexts involving fractions and decimals. Work with the quantities under 20 in previous units allows students to focus on the structure of the problem situation without being bogged down in the computation. In these problems, students are now more familiar with the structures and can work on more challenging number classes.

Modifying the Problems

Each problem is identified when it is presented with a possible solution. Feel free to adapt the problems to provide a full range of examples for your students. For example, the third practice problem is shown above and represents active subtraction with the starting value unknown. If students need to practice situations where the change is unknown, use the same situation and rewrite the problem as this, “He had \$5.25 and then bought plants. He had \$3.50 left. How much did he spend on plants?”

To read more about problem situations and the four operations, check out the *Mathematize It!* book series.



Mathematizing Story Maps by Sara Delano Moore & Kimberly Morrow-Leong
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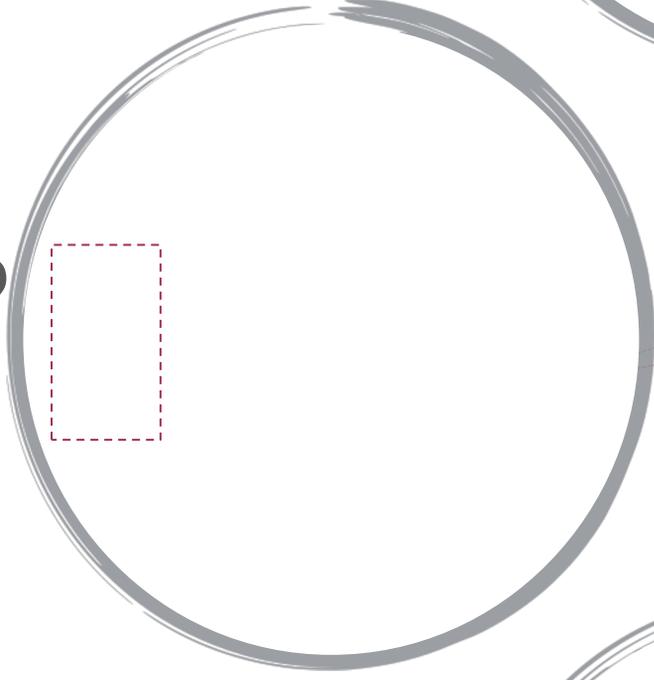
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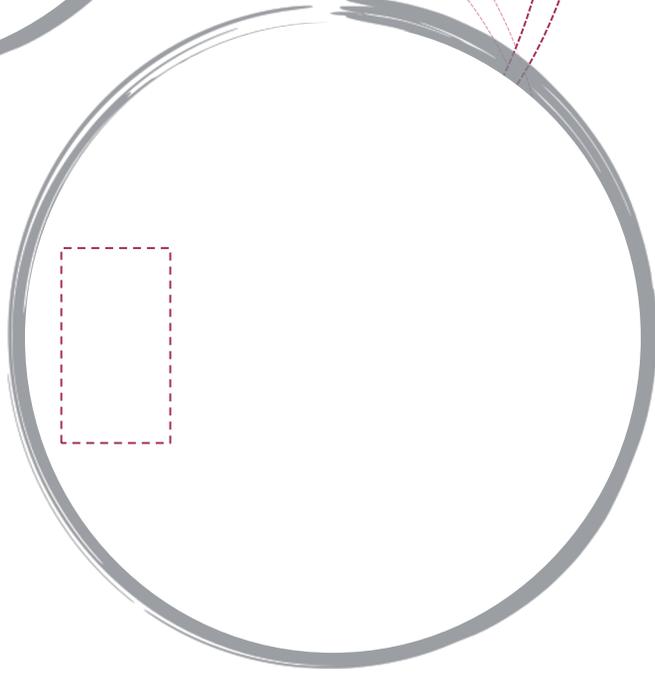
Active Situations

Add-To or Take-From

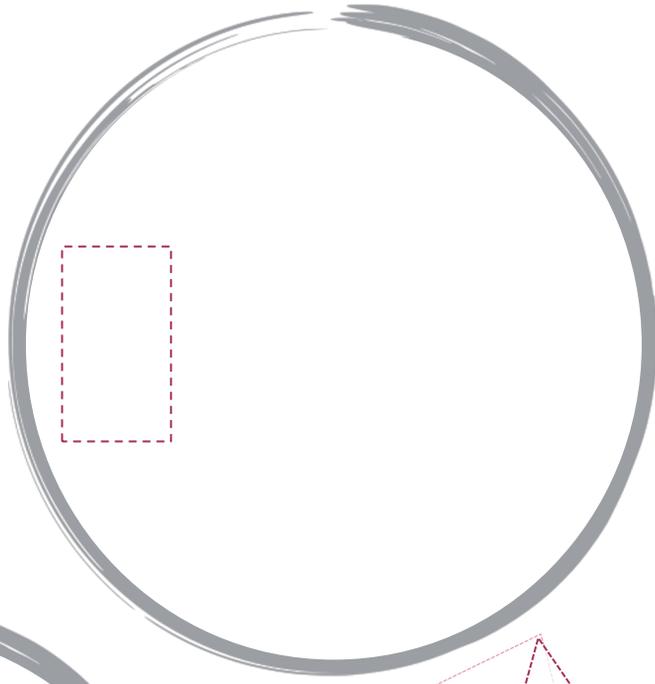
Change



Start



Result



ACTIVE

Addition & Subtraction Practice Problems

Use objects, pictures, numbers, and words to describe what is happening in each problem. Use a mathematizing story map to record your thinking.

Puppies are hungry! The shelter stores puppy food in 10 cup containers and it takes $2\frac{1}{2}$ cups to feed one meal to the puppies. How much was left in the container after the puppies ate breakfast?

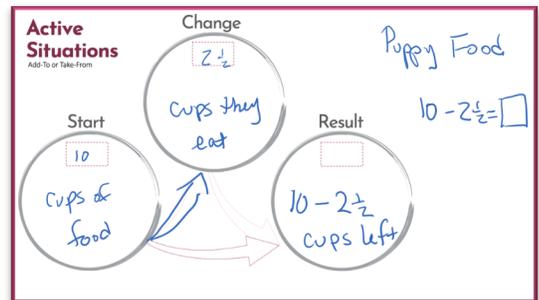
Julissa's friends are coming over to watch a movie. The movie lasts $1\frac{1}{2}$ hours and then the friends want to play video games. The friends begged their parents to let them play for all of the 2 hours. How long will they get to play video games?

Maya's brother wanted to buy some plants for his goldfish bowl. He spent \$1.75 on plants and then counted his money. He had \$3.50. How much money did he have before he bought the plants?

ACTIVE Addition & Subtraction Practice Problems

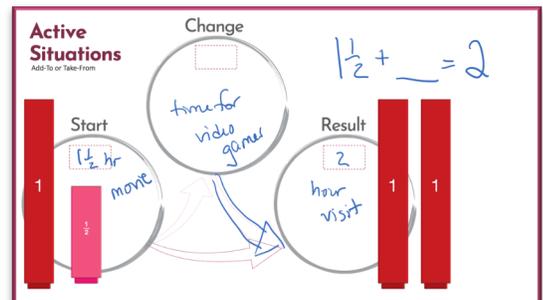
Use objects, pictures, numbers, and words to describe what is happening in each problem. Use a mathematizing story map to record your thinking.

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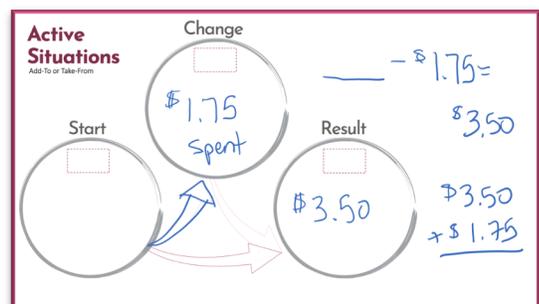
Take From, Result Unknown

Julissa's friends are coming over to watch a movie. The movie lasts $1\frac{1}{2}$ hours and then the friends want to play video games. The friends begged their parents to let them play for all of the 2 hours. How long will they get to play video games?



Add to, Change Unknown

Maya's brother wanted to buy some plants for his goldfish bowl. He spent \$1.75 on plants and then counted his money. He had \$3.50. How much money did he have before he bought the plants?



Take From, Start Unknown