CONTENT-AREA READING

# Apply comprehension strategies when solving word problems

SUPER SATURDAY READING CONFERENCE

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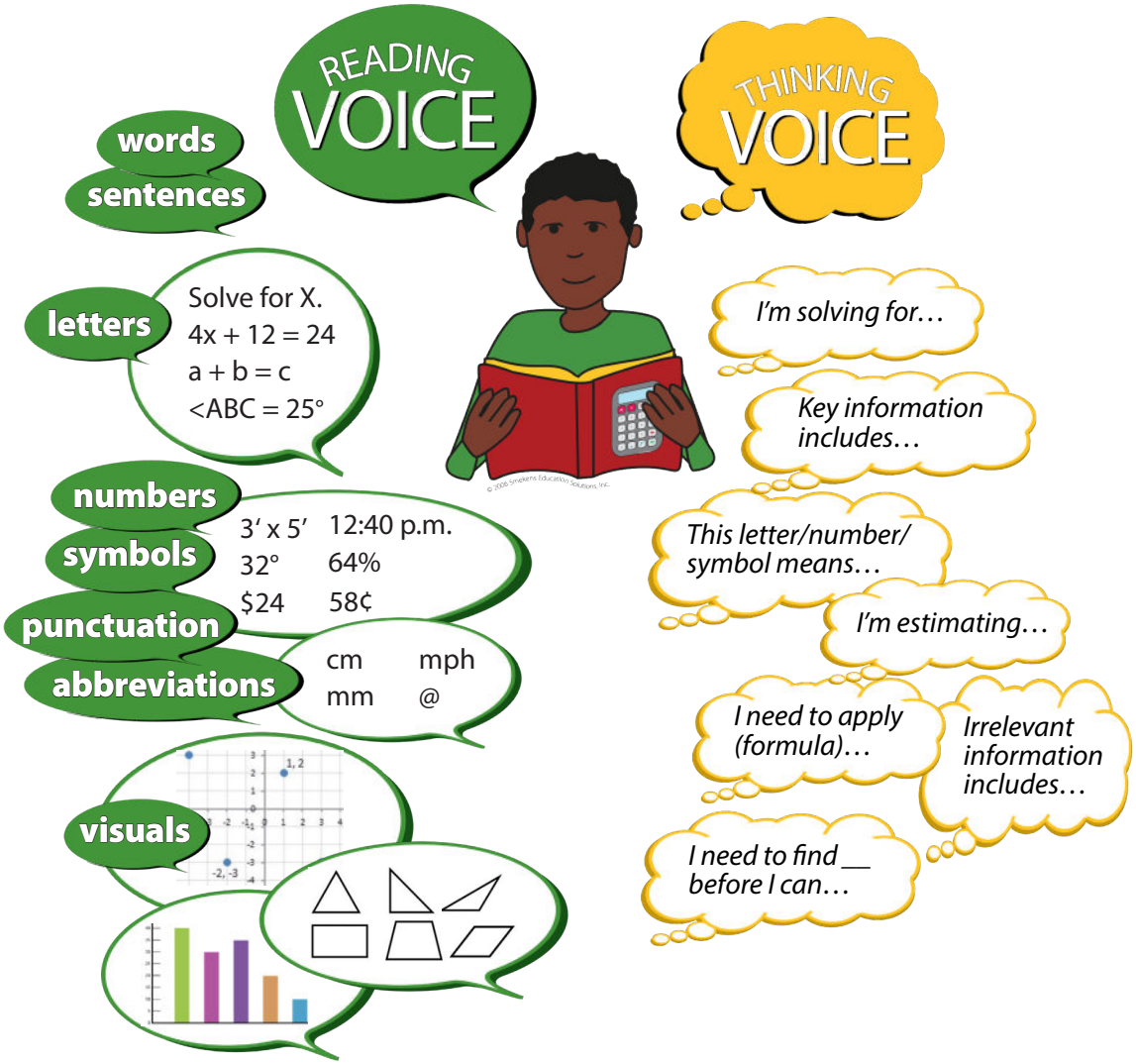
## Understand the mathematician's *Reading* & *Thinking Voices*.




> "Students do anywhere from **10-30 percent worse on word problems** than when the same problem is presented in mathematical form."
>
> J. KINTSCH, UNDERSTANDING WORD PROBLEMS

### Read every story problem three times.

1. Read for overall understanding of what solving for.
2. Zoom in to notice the little words, symbols, and details.
3. Zoom out to integrate comprehension with computation.

**RELEVANT RESOURCE**
Close-Reading Triggers


**SECRET SITE RESOURCE**
Attack story problems with the 3 phases of close reading.

# FIRST READ | Read for surface understanding.

## Comprehend the main idea.

**Decipher** the message.

Every subtle mark affects comprehension.

- words
- abbreviations
- acronyms
- symbols
- numbers
- letters
- icons
- images

Acknowledge symbols have different meanings in different subject areas.


**SECRET SITE RESOURCE**

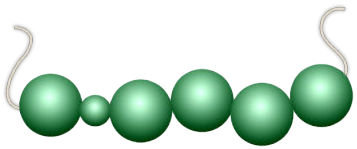
Fluently translate numbers and symbols to words.

- Decode without any phonics clues.
- Model the oral fluency.
- Require students to read aloud.

**SPIN-OFF SESSION**
**READER THINKING**
**Session 1** | Science of Reading

Adjust to a slower reading rate.


- Word problems are dense and compact.



Grasp the **context** or the **situation**.

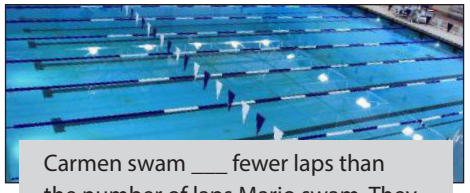
Identify the topic sentence versus the supporting details.

Remove the numbers.

A tank and a pail contain a total of _____ milliliters of water. Jacob pours _____ milliliters of water from the pail into the tank. The amount of water in the tank is now ___ times what is left in the pail. How much water was in the pail at first?

Overcome unfamiliar content.

- Add realia or other visuals to support understanding and troubleshoot a lack of background knowledge.



Carmen swam ___ fewer laps than the number of laps Mario swam. They swam ___ laps altogether. How many laps did Mario swim?

**Find the story** in the problem.

(Somebody) wanted… but…

Xander is unpacking books. He unpacked 4 boxes that each had 24 books. Then he unpacked 8 more books. How many books did Xander unpack?

- Xander
- Wanted to unpack all his books.
- But he didn't know how many books he had.

**SECRET SITE RESOURCES**

## NOW IT'S YOUR TURN

Benjamin has 15 feet of ribbon to cut into ½ foot sections for a scrapbooking project. If he needs 48 pieces of ribbon to complete the project, does he have enough ribbon?

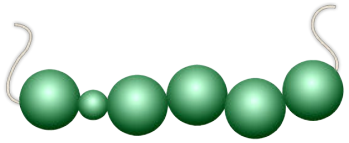

**Identify the label** when determining what solving for.

# SECOND READ | Zoom in on the significant information.

## Annotate the relevant information.

**Read with a purpose**.

- Strikethrough any irrelevant information.

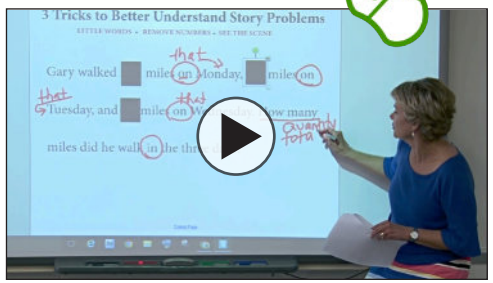


- Mark the key terms and note their meanings.
- Link numbers to nouns.
- Note the tasks within a multi-step word problem.
- Transform the abstract problem to a visual one.

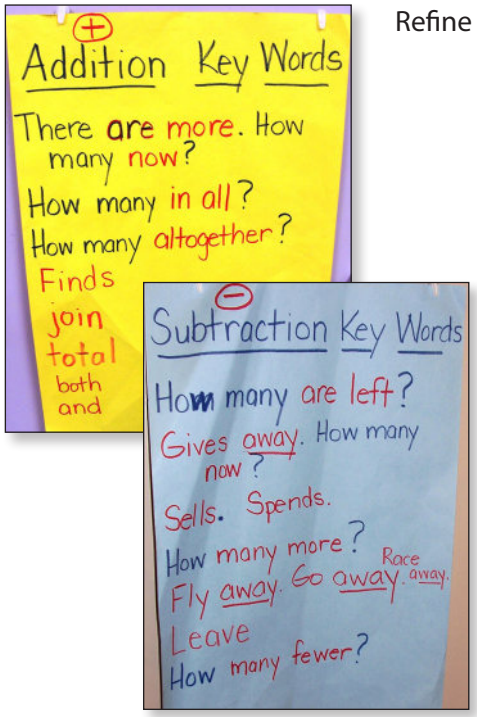
**Focus on precision** and accuracy in reading.

Emphasize little words with big meaning.

| | |
|---|---|
| *the, is, a, are* | *how many, how, many* |
| *on, off, of, who* | *what, which, why* |
| *and, or* | *one, ones, ten, tens* |
| *do (does, did)* | *number, numeral* |
| *be (was, were)* | *can, would, should, could* |
| *it, each, all, same, some* | *find, solve, suppose* |
| *here, there, has, have* | *write, exercises* |




**SECRET SITE RESOURCE**




Refine the explanation of "key words."

- Teach the word's meaning applied in different contexts.

| | | |
|---|---|---|
| Carlos and Elizabeth go apple picking. Carlos puts 10 apples in their basket and then Elizabeth puts 5 **more** apples in their basket. How many apples do Carlos and Elizabeth have now? | Carlos and Elizabeth go apple picking. Carlos puts 10 apples in their basket and then Elizabeth puts some **more** apples in the basket. At the end of the day, Carlos and Elizabeth have 15 apples. How many apples did Elizabeth pick? | Carlos and Elizabeth go apple picking. Carlos picks 10 apples and Elizabeth picks 5 apples. How many **more** apples did Carlos pick than Elizabeth? |

- Maintain a list of aliases.

If there are five horses and 3 jockeys, how many more horses are there than jockeys?

If there are five horses and 3 jockeys, how many fewer jockeys are there than horses?

If there are five horses and 3 jockeys, how many horses won't have a jockey?

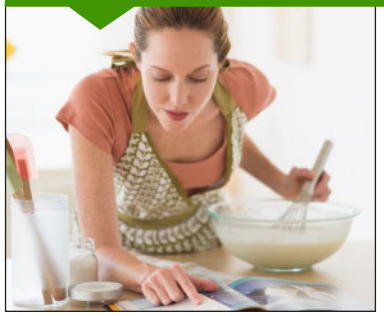
If there are five horses and 3 jockeys, what is the difference between the number of horses and jockeys?

# THIRD READ | Zoom out to integrate knowledge.

## Reread excerpts while solving the problem.

Introduce the **mathematician's mantra**.

***Read a little; do a little.***



Compare to real world.

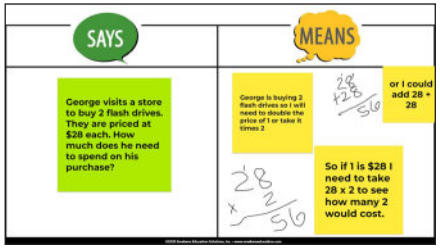
> **"66% of the reading done at school is technical. 78% of the reading done in a real-world job is technical."**
>
> *THE READING TEACHER JOURNAL*

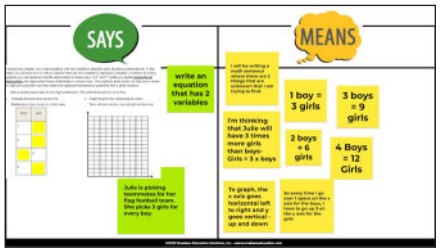
Revise the **reading habits** of your mathematicians.

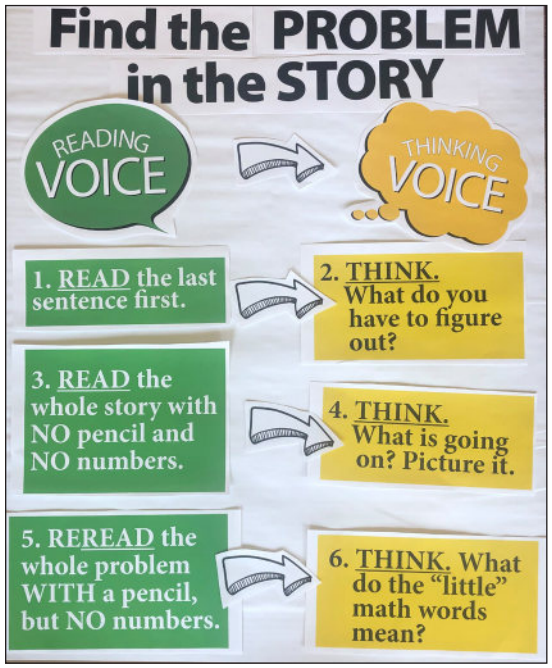
Teach students the individual reading strategies within math class.

Execute close reading in one sitting.

Re-establish expectations.




ANCHOR CHART

**Explain, prove, or argue** what you're doing in a written response.

- *Why do/doing it?*
- *How do/doing it?*
- *When do/doing it?*
- *Where do/doing it?*

**SPIN-OFF SESSION** **CONTENT-AREA READING | Session 2**
Subject-Area Reading