

Word Problems on Fire: Igniting Student Engagement

So glad you are here.



*Karen Hensen
Resource Teacher*





Georgia Council of Teachers of Mathematics

Are you good at capturing the moment?



#GMC2023

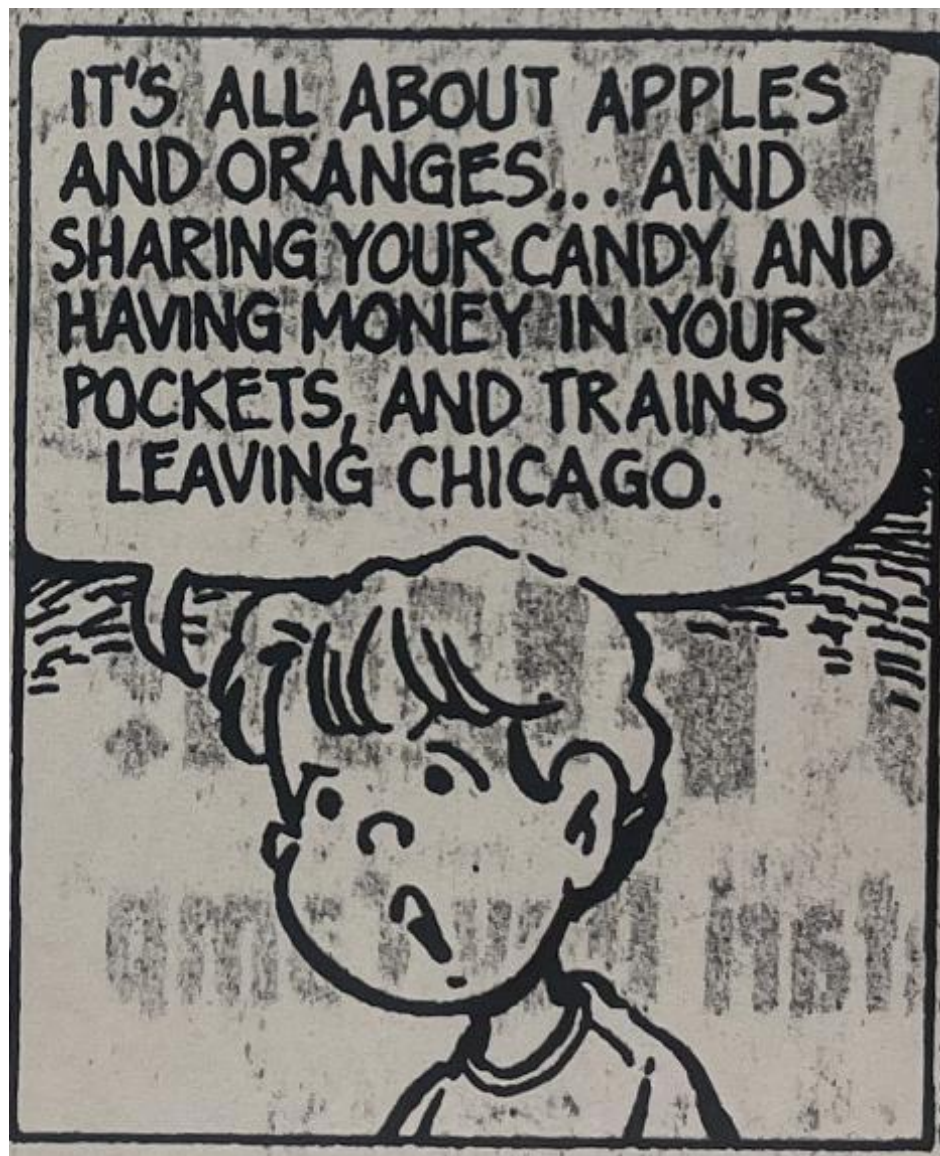
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Email pics to...
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ONE BIG HAPPY





AGREE 

DISAGREE 

MMM.. Is it?

Word Problems are harder than computing with numbers and using stand-alone algorithms.

Why???

What do students do?

EASY - add all the numbers together



“key word” in the problem that students associate with a specific operation



choose operation in current unit



Why is reading avoided in math classes?

teachers concerns:

"My students just won't read it."

"The reading level is too hard for my students."

"The words confuse my students."



Make
sense of
problems

Avoidance is NOT an Option

Attend to
precision

LITERACY is crucial for developing
mathematical habits of mind and true
understanding.



Critique the
reasoning of
others

Construct
viable
arguments

So...

What do we do???



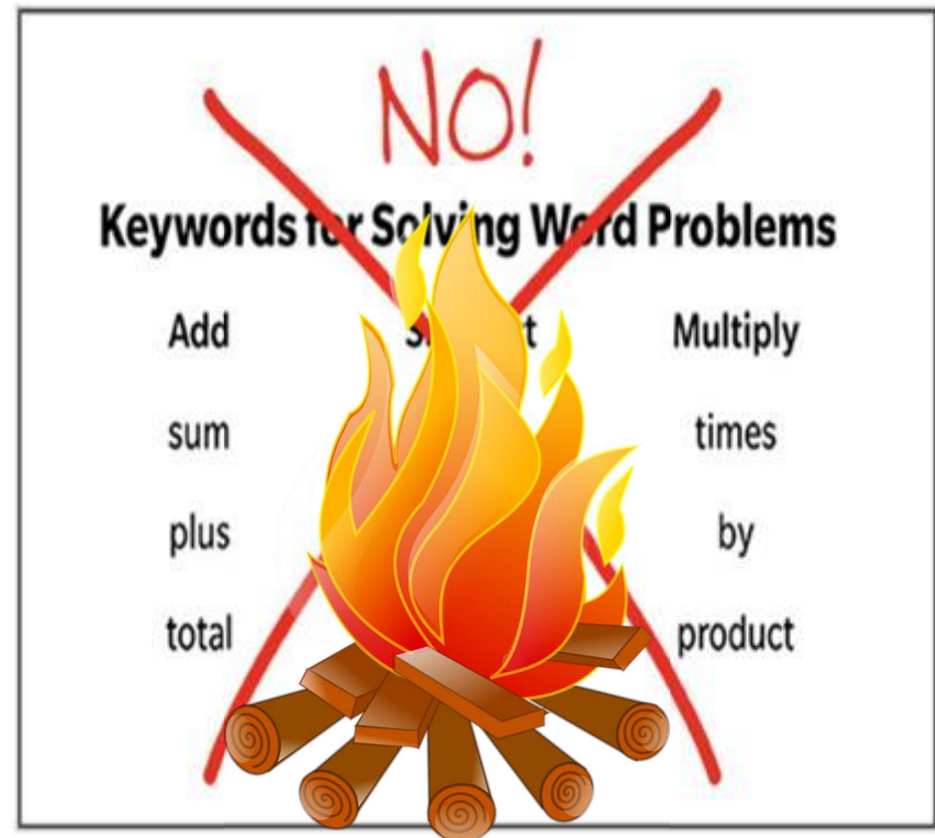
Keywords can be Misleading

There are 6 pencil cases in a box, and I ordered 5 boxes.

How many pencil cases do I have altogether?

keyword for **addition**

NCTM: *13 Rules that Expire*: <http://tiny.cc/umecvz>



Numberless Word Problem

change the way
students have
to engage with
word problems



support literacy

- ✓ chunking
- ✓ 3 read
- ✓ annotation
- ✓ summarizing
- ✓ vocabulary

Reading Strategies

Paper Set Up

Main idea statement

Restate and answer the question.

FACTS

Quantities Units

Justify your Answer

- ★ Show work
 - illustrations
 - tables, graphs
- ★ Anything that helps explain your answer step by step



1st Read

Understand the context

- Show visuals
- Orally read the problem stem

Main idea

- DISCUSS & Record

Cue words *do not* work

Maria and Carlos love to play marbles and are very competitive. Maria has fewer marbles than Carlos. JJ wants in on the action and says he has more marbles than Carlos.



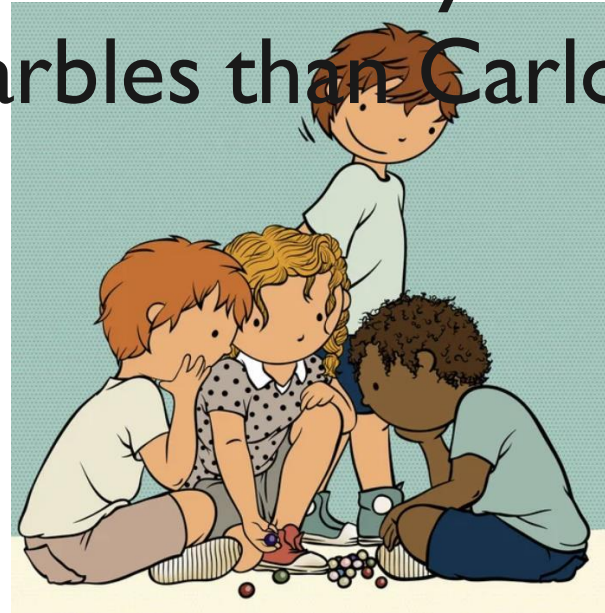
2nd Read

Understand the mathematics

- Choral/Partner
- DISCUSS
facts:
quantities
units



Maria and Carlos love to play marbles and are very competitive. Maria has 24 marbles, which is 8 fewer than Carlos has. JJ wants in on the action and says he has 12 more marbles than Carlos.



3rd Read

Questions

PROMPT Student thinking...



“What is missing to make this a good math problem?”

Discuss



Students Record questions



“Is there only one question we can make?”

“Can this question be answered with the information?”

Choral/Partner read

Maria and Carlos love to play marbles and are very competitive. Maria has 24 marbles which is 8 fewer than Carlos has. JJ wants in on the action and says he has 12 more marbles than Carlos.

Example Questions...



How many
marbles does
Carlos have?

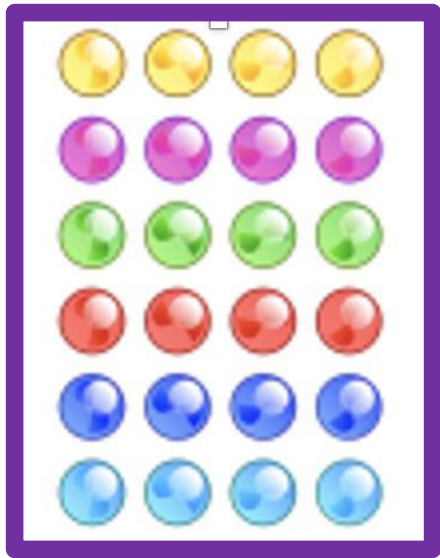


How many marbles do
the three kids have?

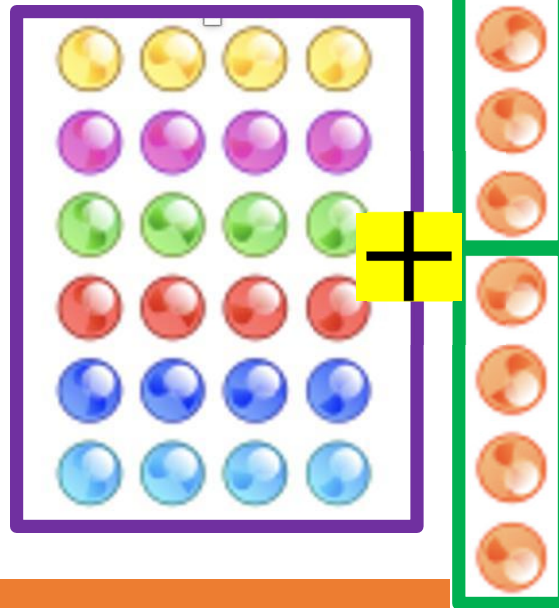


How many
marbles does JJ
have?

Maria's 24
marbles

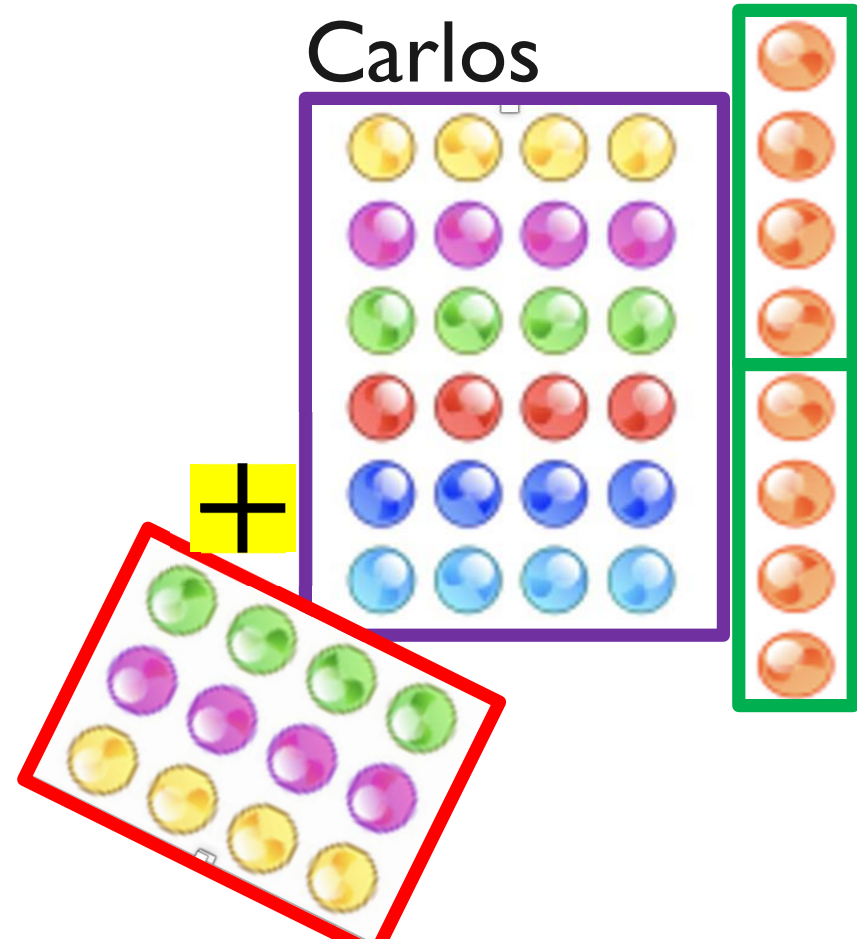


Carlos' has 8
more marbles
because...

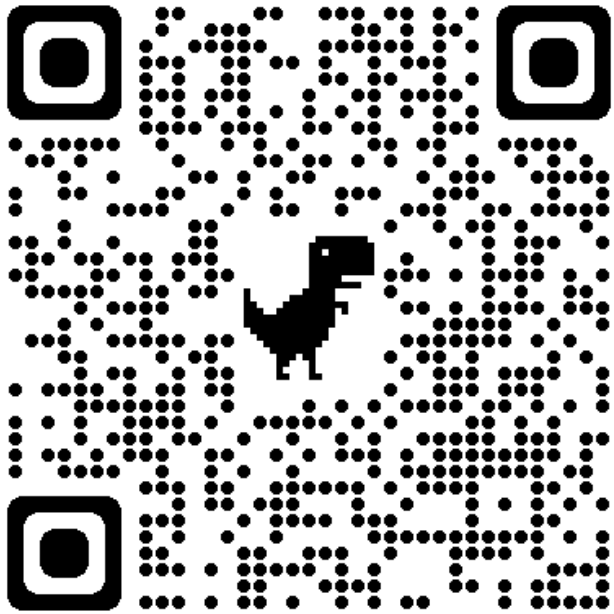


Maria has 8 fewer than
Carlos has

JJ has 12 more
marbles than
Carlos

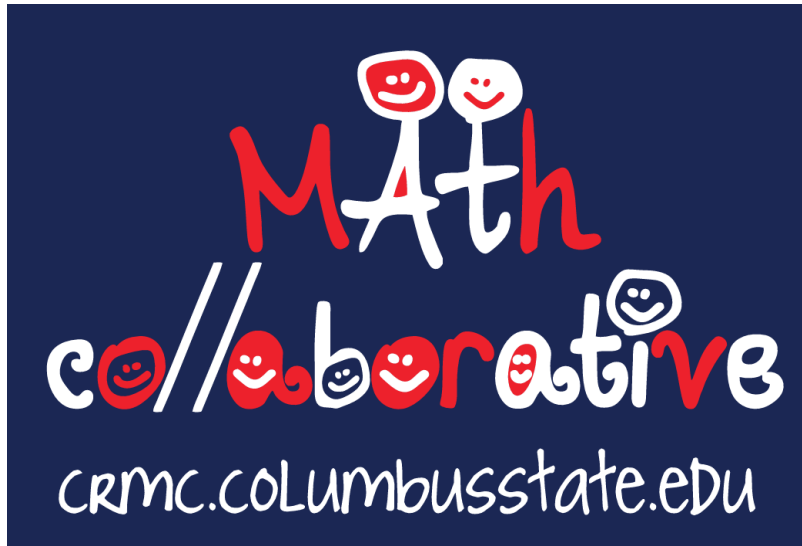


Numberless Word Problems



<https://numberlesswp.com/>

Who We Are



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Paper forms are available.

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Complete the survey at

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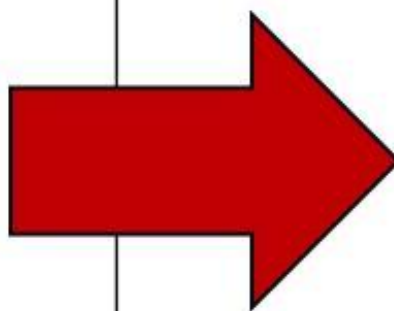


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Ways to Submit Feedback

