Solving word Problems

↳ story

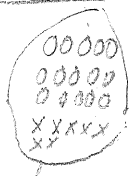
How do we solve word problems?

What can we use to model our thinking?

- ten frame
- tally marks
- number line
- pictures
- cubes
- equation
- number sentence

How do we communicate our thinking so other people can understand it?

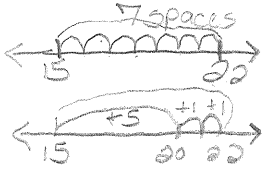
There are 15 bugs on a leaf. Some more bugs landed on the leaf. There are now 22 bugs.

What do we Know?	Draw
15 bugs (?) more bugs come 22 total	

How many additional bugs landed on the leaf?

Strategies

$15 + \square = 22$



Words

I drew 15 bugs.
I added 7 more to get 22.

7 new bugs

(Interactive Session)

What do we know?	Draw

Strategies	Words

Mathematical Standards and Practices

1) We will use multiple strategies to persevere in solving story problems.
2) We will solve addition and subtraction word problems using models, numbers and words to communicate our thinking to others.

What we know about word problems | Inquiry | What we want to learn about word problems

AIM4S^3 ™

2nd Grade – CCSSM
Focus: OA

UNIT PLANNING TOOL

Planning Focus: Addition and Subtraction with word problems **Module(s)/Unit(s)** Deming Pacing guide weeks 5-8

CCSSM:

2.MD.B.6: Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

2.OA.B.2: Fluently add and subtract within 20 using mental strategies.2 By end of Grade 2, know from memory all sums of two one-digit numbers.

2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Mathematical practices being emphasized:

Make sense of problems and persevere in solving them. (#1)

Construct viable arguments and critique the reasoning of others. (#3)

Essential Questions

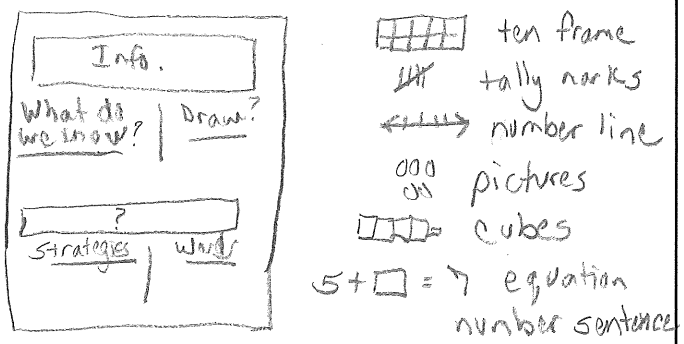
What tools help us model our thinking? How do we solve word problems?

How do we show our work/thinking so other people can understand it?

Key Concepts

- Strategies to solve addition and subtraction problems (builds on week 3 and 4)
- Flexibility using multiple strategies to solve word problems looking at the context
- Communicating thinking using words, objects, pictures, and equations

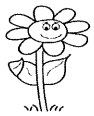
Visual Models/ Algorithms/ Diagrams for Compendium



Pre Assessment

Preassessment – Show me two ways you can solve these problems.

14+5=



12-6=

My dog ate 5 bones at breakfast and 6 bones at lunch. For dinner, she ate 3 more. How many bones did she eat?

Miguel had 5 stickers. Juanita gave him some more stickers. He now has 11 stickers. How many stickers did Juanita give Miguel?

If time – differentiated sequence counting on back

Connections (Real World Applications)

Students use addition and subtraction on a daily basis. Watch for examples of real problems in the classroom that can be highlighted.

- *How many more boys than girls here today?*
- *We have 22 sharp pencils but we need 25 sharpened pencils so everyone has one. How many more do we need to sharpen?*
- *I have 12 scissors. John just gave me 4. How many scissors do I have? Oh no, I just dropped 2. How many do I have in my hand?*
- *10 kids are in line for PE. How many students still need to line up?*

Language Functions/Structures

Functions: Explain. Describe.

Structures: I drew ____ because _____. I used a number line and started at _____.
You add ____ plus ____ and get ____. First, I ____. Then I _____.
I _____ to find the answer.

Why did you _____? I _____ because _____. The tool I used was _____.

Vocabulary

solution	add	make a ten	more
answer	addend	number line	less
equation	subtract	hundreds chart	equal
picture	difference	putting together	
model	count on	taking apart	
number sentence	count back	strategies	

Focus and Motivation

You Tube – Solve Me Maybe – Elementary Math Problem Solving Steps
https://www.youtube.com/watch?v=2Y4x7EgwWl0

Chants – Mental Math Addition Bugaloo (DLeNM chant bank)

Literature – *The Grapes of Wrath* by Greg Tang (Fish School, Ant Attack)
The Action of Subtraction by Brian O. Cleary
Mission: Addition by Loreen Leedy
Subtraction Action by Loreen Leedy

Game – I have, Who has? (different version available on-line), counting up and back games

Mental Addition Bugaloo
by Lisa Meyer

I'm a mathematician and I'm here to say,
I use addition strategies every day.
Sometimes I draw a picture or use blocks instead
But by second grade I want to do them in my head.

Doubles, making ten, counting on too,
Doing the addition bugaloo.

I'm a mathematician and I'm here to say,
Making ten helps me every day.
I find the ten and then add the rest,
My friends think this strategy is the best.

Doubles, making ten, counting on too,
Doing the addition bugaloo.

I'm a mathematician and I'm here to say,
Counting on helps me every day,
Start with a number and add some more,
just count on as you're walking out the door.

Doubles, making ten, counting on too,
Doing the addition bugaloo.

I'm a mathematician and I'm here to say,
I use fact families every day.
Addition can do a quick turn around.
Now with subtraction, the answer can be found.