December 3, 2017

# Addition and Subtraction Word Problems

Eileen Hernon

**Objectives:**

- Students will **know:** (facts/information)
  - > Addition problems have you put numbers together
  - > Subtraction problems have you find the difference between numbers
- Students will be able to **do:** (skills and behaviors)
  - > Identify what word problems are asking them to do
  - > Solve addition and subtraction word problems using counters, number lines, and number sentences.

**Virginia & Common Core Standards:**

- Virginia SOL Content Standards
  - > (Identify one primary and one secondary content standard):
- Primary VA SOL: 1.6 The student will create and solve one-step story and picture problems using basic addition facts with sums to 18 or less and the corresponding subtraction facts.
  - > Secondary VA SOL: 1.5 The student will recall basic addition facts with sums to 18 or less and the corresponding subtraction facts.
- Common Core State Standards Content Standards
  - > (Identify one primary and one secondary content standard):
- Primary CCSS 1.OA.A.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
  - > Secondary CCSS 1.OA.C.6 :Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten; decomposing a number leading to a ten; using the relationship between addition and subtraction; and creating equivalent but easier or known sums

Lesson objectives | Teachers' notes

**Content Topic: Addition and Subtraction Word Problems**
**Grade Level: 1**
**Prior knowledge:** In previous lessons, students would've gained practice adding and subtracting using manipulatives such as colored counters and number lines. They will need to be masters at counting and representing numbers (in quantity and written-out).
**Materials and Resources:**

SmartBoard Notebook presentation

- All students will need an individual number line
- All students will need individual red and yellow counters
- All students will need a piece of scratch paper and a pencil

**Assessment:** Formative (required):

Students will be assessed throughout the lesson based on their participation during whole-group instruction.

- Agree/Disagree: I'll ask students to share their thinking and then engage the rest of the group in a conversation by asking them to show me with their thumbs if they agree or disagree. This will happen when they're sharing their answers and strategies with the whole group.
- I'll routinely call on students to share their processes and strategies
- Partner-work: I'll walk around the classroom while the students are tackling problems with a partner. This will give me an idea of the pace at which students are progressing and influence what I bring up in the rest of the lesson and how I plan for tomorrow

> Students will write their own problem, which will help extend the learning and give me an idea of their understanding of how word problems work. This will happen at the end of the lesson.

**Key Vocabulary and Definitions:**

- Subtract: find the difference between numbers
  Add: put two numbers together
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Lesson objectives | Teachers' notes

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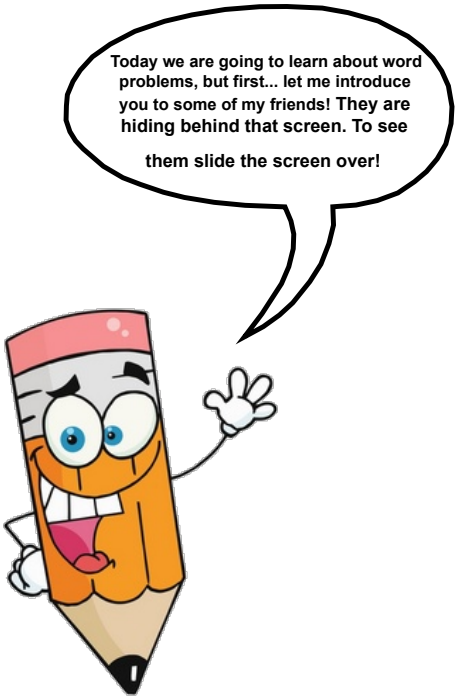


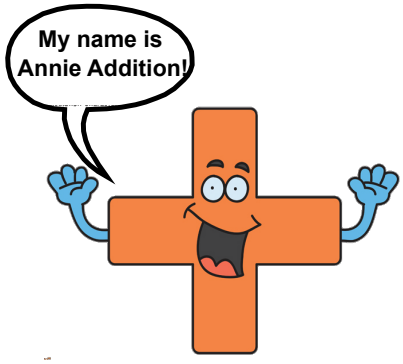


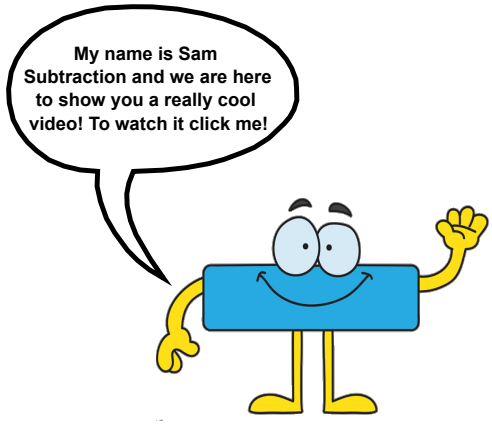


**Slide adapted from Lainee Gibson's work on SmartExchange (http://exchange.smarttech.com/details.html?id=0ef7d8b8-b0ed-486d-b3fb-fccfbd6f29bc)

December 3, 2017

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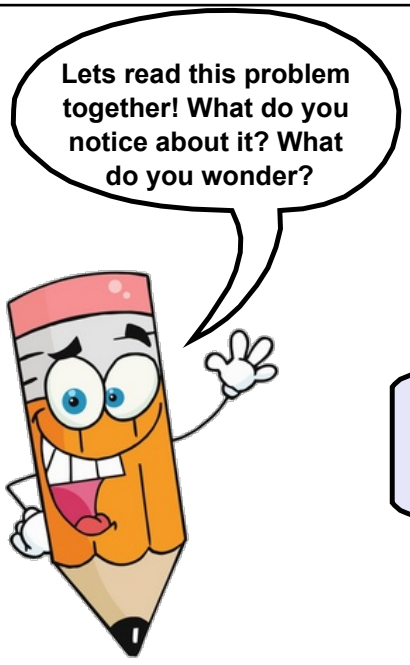


Ari has 5 red cars and 3 yellow cars.

December 3, 2017

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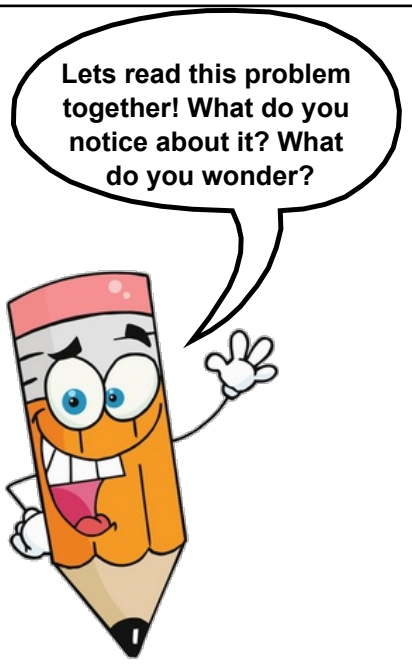
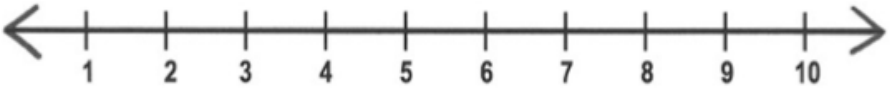



Ari has 5 red cars and 3 yellow cars.

How many cars are there all together?





December 3, 2017


Ari has 5 red cars and 3 yellow cars.

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December 3, 2017

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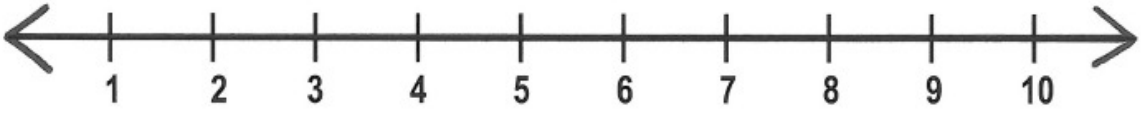
Maria has 4 books.
Seamus has 6 books.





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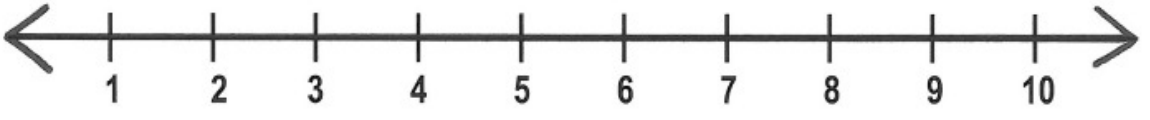

December 3, 2017

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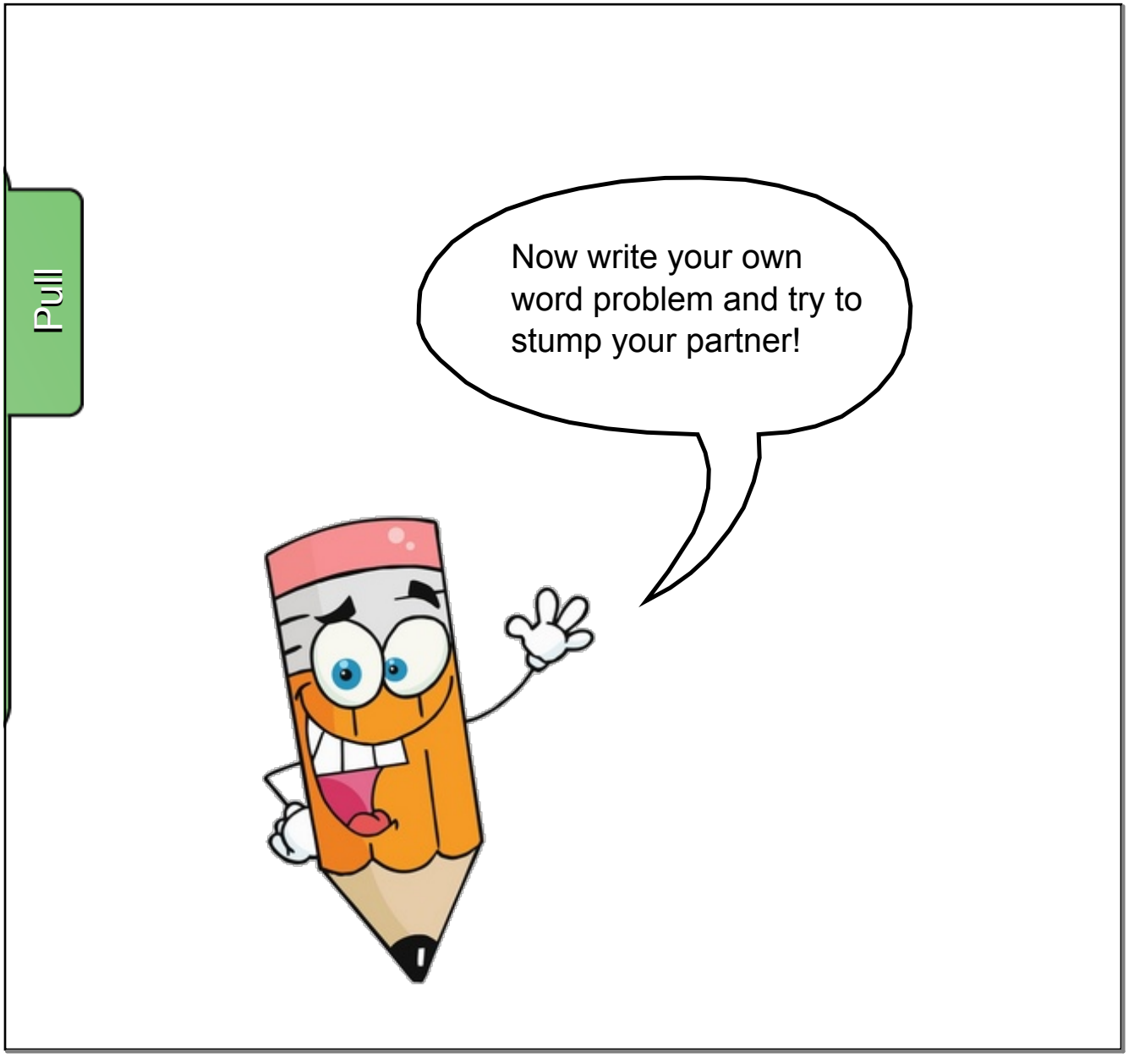

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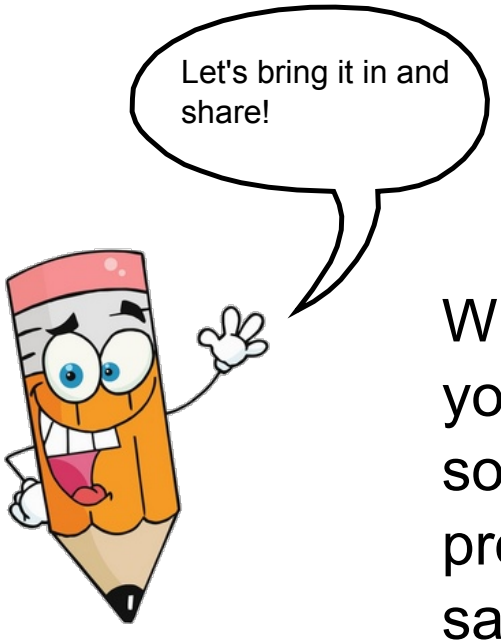


What strategies did your partner use to solve your word problem? Is that the same strategy you would've used?

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Tara has 4 apples and 10 grapes. How much fruit does she have all together?

Clarence has $5 and Jordan has $9. How much money do the boys have all together?

Eliza has 2 fish, and Caroline has 13 fish. How many more fish does Caroline have than Eliza?

**Accommodations for individual differences:**

- Students will have their choice of manipulative when they are working with their shoulder partner, which should help students at a variety of levels gain access to the content. Additionally, if the teacher notices students aren't quite understanding the concepts or procedures, there is room within the lesson (scripted) to pull the class back together to clear up misunderstandings. While students are working with groups and pairs, the teacher will constantly monitor the classroom and work individually with students at their tables to clear up confusion and reteach if necessary.

- Evidence of differentiation
  - > Students who quickly master the material can use abstract representation to solve the word problems. Additionally, the "write your own word problem" should re-engage them if the prescripted word problems weren't challenging enough.Students who write and master the word problems quickly can write more than one.
  - > If it becomes evident that students show a lot of prior knowledge, the teacher can give them word problems other than part-part-whole and compare problems

Examples of other word problems for students who have prior experience with word problems (these should offer more variety, which will help prevent boredom):

Quentin has 4 cookies. He buys 12 more at the store. How many cookies does Quentin have now?

Quentin has some cookies. He goes to the store and buys 9 more. He now has 13 cookies. How many cookies did he start with?

Quentin has 5 cookies. He gave some to Jane. He now has 1 cookie. How many cookies did he give to Jane?

## Feedback from peer reviewer:

Do the kids know the term “difference”? in defining subtraction, you may want to be more explicit about numbers being taken away or the value of the number decreasing, just in case they don’t know they term “difference”. But if you don't explicitly use this term in your teaching and its just for your own objectives, that's fine.

Amazing and engaging use of technology with the song embedded in the slide!

I love the friendly cartoon figures.

Nice modeling of ‘noticing’ for accommodating individual differences.

Great modeling and thinking out loud for teaching the number line strategy.

Very natural integration of word problems into the lesson.

Incorporated wait time into the scripting in a very purposeful and meaningful way that will help the students and the teacher have space to respond mindfully.

Will the students be talking about the answers as a class after they finish each problem? It might be helpful to have one student come up to the board and think aloud their process and have the teacher fill in any gaps as far as explanation goes. Also will give an opportunity for open ended discussion if another student got the same answer but in a different way.

AWESOME extension activity. Might need to prepare to model thinking aloud creating your own word problem before asking them to do so, just to anticipate them not understanding the process involved.

I love the enthusiastic way that you conclude the lesson by asking them about their creative strategies and problems they created. Something to think about might be incorporating touches of this into your language throughout the entirety of the lesson, just so they see a bit more purpose behind what they are doing, and the enthusiasm will also be important in boosting their engagement.