



Grade 1 Unit 4

Operations and Algebraic Thinking

Volume 1 Issue 4

References

Helpful Links:

<https://smart.wikispace.s.hcps.org/Grade+1>

http://www.thinkingblocks.com/tb_addition/addition.html

<https://smart.wikispace.s.hcps.org/Grade+1+Operations+and+Algebraic+Thinking>

Math Grade 1 Textbook Connection:

Ch. 1, lesson 1-12

Ch. 2, lesson 1-14

Ch. 3, lesson 1-9

Ch. 4, lesson 1-8

Textbook Online:

<http://connected.mcgraw-hill.com/connected/login.do>

Ask your teacher for the online passcode.

Dear Parents,

Your student's math class is calling for students to be actively engaged in doing math in order to learn math. In the classroom, students will frequently work on tasks and activities to discover and apply mathematical thinking. Students will be expected to explain or justify their answers and to write clearly and properly. Your students will receive a consumable textbook and online access from their teacher.

Concepts Students will Use and Understand

- Explore, understand and apply the commutative and associative properties as strategies for solving addition problems.
- Share, discuss and compare strategies as a class.
- Connect counting on to solving subtraction problems. For the problem "15-7 = ?" they think about the number they have to count on from 7 to get to 15.
- Work with sums and differences than or equal to 20 using the numbers 0 to 20.
- Identify and then apply a pattern or structure in mathematics. For example, pose a string of addition and subtraction problems involving the same three numbers chosen from the numbers 0 to 20, such as $4 + 13 = 17$ and $13 + 4 = 17$.
- Analyze number patterns and create conjectures or guesses.
- Choose other combinations of three numbers and explore to see if the patterns work for all numbers 0 to 20.
- Understand that addition and subtraction are related and that subtraction can be used to solve problems where the addend is unknown.
- Use the strategies of counting and counting back to understand number relationships.
- Organize and record results using tallies and tables.
- Determine the initial and change unknown in problem solving situations.

Vocabulary

Addition: Combining groups to find the total.

Subtraction: Taking away from a group.

Difference: Answer to a subtraction problem.

Equation: Number sentence that uses the equal sign.

Sum: Total when numbers are added.

Symbol: A character other than a number used to mark the unknown in an equation.

Symbols

+ Addition

- Subtraction

= Equal

♥ ☺ = Symbol

Example 1

The 100-chart is a useful tool for a first grade student who is working with addition.

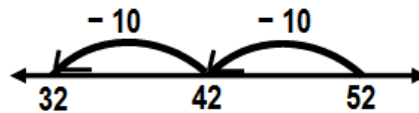
1	2	3	4	5	6	7
11	12	13	14	15	16	17
21	22	23	24	25	26	27
31	32	33	34	35	36	37
41	42	43	44	45	46	47
51	52	53	54	55	56	57

$$14 + 30 = 44$$

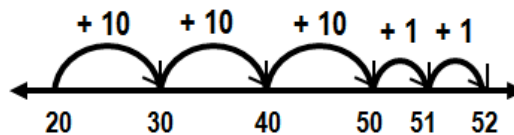
This section of the 100-chart shows how a student has started at a two-digit number (14) and added a multiple of ten (30) to find a total of 44.

Example 2

Once again, the *open number line* can be used when doing subtraction. $52 - 20 = 32$



The above example shows how a student may do the subtraction problem $52 - 20$. The example below shows the same problem using the *adding up* strategy.



The student has started at 20 and counted up to 52, which results in a solution of 32. All first graders have to continually explain their thinking.

Example 3

$25 + 9 = 34$

2 tens and 5 ones + 9 more ones

Example 4

Addition: Making Tens

Making tens is an important strategy for fluency. Students work with ten-frames (below). They combine dots to fill a ten-frame. Below, we moved 2 dots from 5 to make a ten. The result is $10 + 3$.

$8 + 5$

$10 + 3$

We can apply the combinations of tens to add other numbers. In $58 + 5$, we might break apart 5 into $2 + 3$ and then add the 2 to 58 making the next ten which is 60.

$58 + 5$

$60 + 3$

Activities At Home:

- Roll single digit numbers and add them together.
- Roll 2-digit or 3-digit numbers and add them together.
- Add all the digits of your house number together.
- Make a train with Legos or colored blocks. Write a number sentence for the different colors in the train.
- Add the price of two items at a store.
- Compare gas prices to find the lowest amount.
- Start with 20 counters (beans, pennies, etc.) and roll two dice to make a 2-digit number. Subtract counters until you get to 0.
- Give your student an addition or subtraction number sentence and ask them to make up a story problem to go with the number sentence.