Parent Information: Addition & Subtraction with Whole Numbers & Decimals (4th Grade)

Students in 4th grade need to solve addition and subtraction facts within 20 fluently (without counting on fingers or using objects to count). They also need to solve addition and subtraction with large numbers and with decimals to the hundredths place. Students use number lines, strip diagrams, models, and the standard algorithm to solve problems, regrouping when needed. Students solve one-step and multi-step problems involving addition and subtraction.

Fact Fluency: Students need to be very familiar with addition and subtraction facts up to 10 + 10 = 20 and 20 - 10 = 10.

Larger Numbers Addition Problems: Students can use reasoning and grouping by place value to add larger numbers.

423 + 552 = _____ First, add the hundreds (400 + 500 = 900)
Next, add the tens (20 + 50 = 70)
Then, add the ones (3 + 2 = 5)
Finally, combine the sums of the hundreds, the tens and the ones (900 + 70 + 5 = 975)

Decimal Addition Problems: Students can use reasoning and grouping by place value to add decimals.

1.42 + 5.16 = _____First, add the whole numbers (1 + 5 = 6)
Next, add the tenths (0.4 + 0.1 = 0.5)
Then, add the hundredths (0.02 + 0.06 = 0.08)
Finally, combine the sums of the whole numbers, tenths, and hundredths (6 + 0.5 + 0.08)

Adding And Subtracting Decimals With The Algorithm: Students need to align the decimals when adding and subtracting with the algorithm so that the same place values are being combined or separated. Students may wish to use grid paper to help align the decimals.

1.35 + 2.6

	1	.	3	5
+	2	.	6	
	3	.	9	5

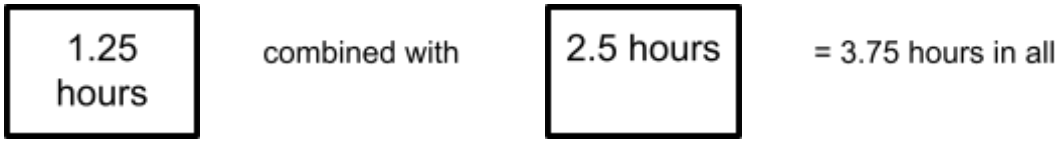
4.83 - 3.2

	4	.	8	3
-	3	.	2	
	1		6	3

Students need to identify the action that is taking place in a word problem to know how to solve the problem.

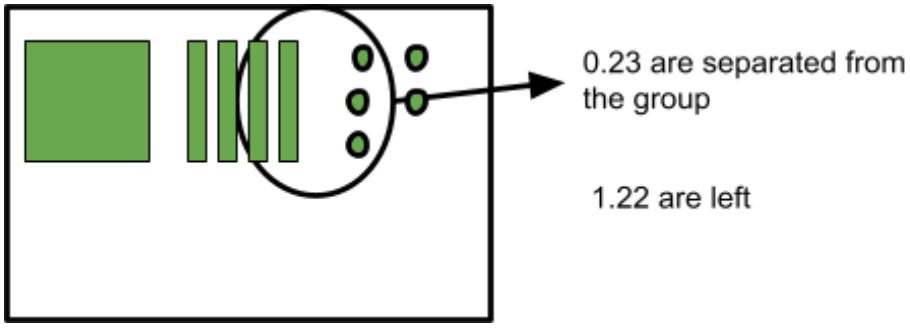
Combine: When a problem involves combining two or more groups to find the total, the student can add to solve.

Juan read 1.25 hours one day and 2.5 hours the next day. How many hours did he read in all?



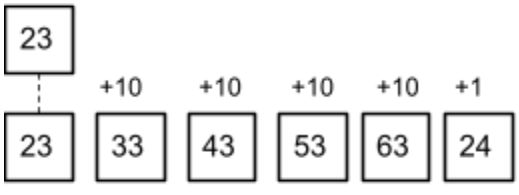
Separate: When the word problem involves removing part of a group, the student can subtract to solve.

Josiah has 1.45 pounds of dog food. His dog ate 0.23 pounds of dog food today. How much dog food does Josiah have left?



Compare: When a word problem asks students to compare two amounts, students can subtract to solve. They can also count up to solve.

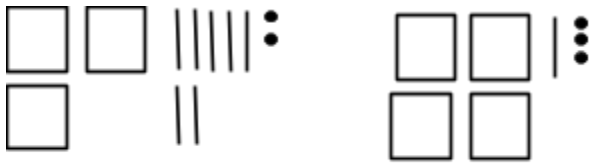
Kiran has $64. Adil has $23. How much more money does Adil have than Kiran?



When 23 is subtracted from 64 (the amount the two numbers have in common), there is 41 left.

Starting at 23 (the amount they both have in common), count up by tens and then ones to 64. The amount you need to get to 64 is 41.

Model Addition Problems: Students represent addition situations with pictures and number sentences. Students use words to explain how addition problems are solved. Students work with base ten blocks (place value blocks) when working with decimals, using squares to represent ones, sticks to represent tenths, and dots to represent hundredths. Students use place value disks to represent whole number addition.

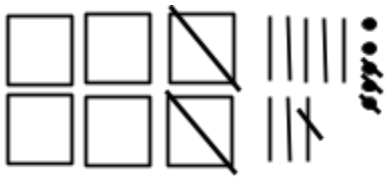


3.72 + 4.13 = 7.85

4,205 + 3,163 = 7,368

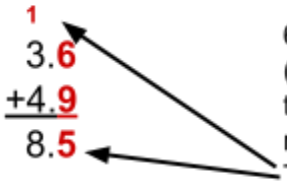
Thousands	Hundreds	Tens	Ones
Th Th Th Th	H H		O O O O O
Th Th Th	H	T T T T T T	O O O
7,000	**300**	**60**	**8**

Model Subtraction Problems: Students represent subtraction situations with base ten blocks (place value blocks) and draw representations with squares ones, sticks for tenths, and dots for hundredths.

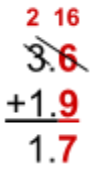


6.85 - 2.13 = 4.72

Regrouping: In addition, students regroup when the sum of the digits is greater than 9. In subtraction, students regroup when they need to subtract a larger digit from a smaller digit.



6 tenths plus 9 tenths is 15 tenths (1.5). You can only put 1 digit in the tenths place for the answer, so you regroup the ten tenths to be one whole. The tenths digit from 1.5 is recorded in the tenths place, and the new whole goes into the ones column.



To subtract 9 tenths from 6 tenths, you regroup one whole into ten tenths. Add those tenths to the 6 tenths to get 16 tenths. 16 tenths minus 9 tenths is 7 tenths, which is recorded in the tenths place. This leaves 2 wholes minus 1 whole in the ones place.

Word Problems: 4th grade word problems can be one-step problems or multi-step problems. Students are encouraged to draw representations to solve word problems.

One-Step Problem: Problems that can be solved with one equation (step).

"Carlos bought 2.38 pounds of candy. He gave 1.14 pounds of candy to his friends. How many pounds of candy does Carlos have now?"

2.38 - 1.14 = 1.24 pounds of candy

Multi-Step Problem: Problems that require more than one equation (step).

"Lucy had 354 beads. She used 232 beads to make bracelets. Then she bought 425 more beads. How many beads does Lucy have now?"

Step 1: 354 - 232 = 122 (beads she started with minus the beads she used)
Step 2: 122 + 425 = 547 (beads she had after making the bracelets plus the beads she bought)

Unknown Number in Equations: Students may be asked to find any number in the addition or subtraction problem.

Unknown Beginning: Unknown beginning problems may be solved with the inverse operation. For example, _____ + 15 = 42 could be solved with the subtraction problem, 42 - 15 = ____.

Mom baked some cookies for the party. Anna baked 124 cookies for the party. Together they baked 368 cookies. How many cookies did Mom bake?

_____	+	124	=	368
(cookies Mom baked)		(cookies Anna baked)		(total cookies)

Jon's brother gave him some baseball cards. Jon gave 39 cards to Jack. Now Jon has 132 cards. How many cards did Jon's brother give him?

_____	-	39	=	132
(cards Jon's brother gave him)		(cards Jon gave to Jack)		(cards Jon had left)

Unknown Change:

Mom baked 45 cookies for the party. Arturo ate some cookies. Now there are only 41 cookies. How many cookies did Arturo eat?

45	-	_____	=	41
(cookies Mom baked)		(cookies Arturo ate)		(cookies that are left)

Jon had 226 baseball cards. Liz gave him some more cards. Now Jon has 230 cards. How many cards did Liz give him?

226	+	_____	=	230
(cards Jon had)		(cards Liz gave him)		(cards Jon has now)

Unknown End:

Dad baked 132 cookies for the party. Chan baked 118 cookies for the party. How many cookies did they bake in all?

132	+	118	=	_____
(cookies Dad baked)		(cookies Chan baked)		(cookies in all)

Kara had 250 baseball cards. She gave 16 cards to Ted. How many cards does Kara have left?

250	-	16	=	_____
(cards Kara had)		(cards Kara gave to Ted)		(cards Kara has now)

Strip Diagram: A strip diagram represents a problem.

Marc baked 76 cookies. April baked some cookies. They baked 150 cookies in all. How many cookies did April bake?

(Total number of cookies)
150

76 *(The cookies Marc baked)*	? *(The cookies April baked)*

Marc used 7.6 pounds of apples to bake pies. April used 6.9 pounds of apples to bake pies. How many total pounds of apples did Marc and April use to bake pies?

(Total pounds of apples used)
?

7.6 *(Pounds of apples Marc used)*	6.9 *(Pounds of apples April used)*