

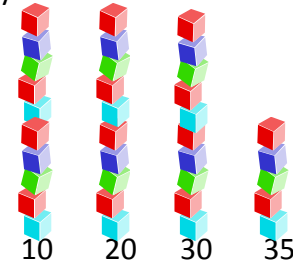
Computation Strategies in Third Grade

Children in third grade continue to work on efficient strategies for addition and subtraction. Their work focuses on grouping numbers, not counting by ones.



Counting by Groups

Children in second grade count by groups of tens and ones:



Counting Strategies—Counting On or Counting Back

Children use quicker ways to solve problems using counting strategies. Often using a number line, hundreds chart, or mental math, children use tens to solve bigger problems:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

$$16 + 23 = 39$$

Addition and Subtraction Strategies

Children start breaking numbers apart into groups that are easier to add or subtract. They can use problems they know to solve more difficult problems without counting.

- **Starting with the Tens:** $16 + 23 = \square$
 $\underline{10} + \underline{6} + \underline{20} + \underline{3} = \underline{10} + \underline{20} + \underline{6} + \underline{3}$
 $30 + 9 = 39$
- **Rounding:** $26 + 68 = \square$
 $26 + 70 = 96$
 $96 - 2 = 94$
- **Solving Left to Right:** $42 + 59 = \square$
 $40 + 50 = 90$
 $2 + 9 = 11$
 $90 + 11 = 101$
- **Landmark Numbers:** $38 + 38 = \square$
 $40 + 40 = 80$
 $80 - 4 = 76$

- $46 - 24 = \square$
 $40 - 20 = 20$
 $6 - 4 = 2$
 $20 - 2 = 22$
- $48 - 29 = \square$
 $48 - 30 = 18$
 $18 + 1 = 19$
- $64 - 36 = \square$
 $60 - 30 = 30$
 $4 - 6 = (-2)$
 $30 - 2 = 28$
- $81 - 52 = \square$
 $81 - 50 = 31$
 $31 - 2 = 29$

Third Grade Computational Fluency

Third grade students work on addition and subtraction combinations to 20. By the end of third grade, they should know their addition and subtraction facts well enough to recall them easily. They should be developing multi-digit addition and subtraction strategies.

Third Grade Computation Strategies--continued



Children in third grade develop strategies to solve multiplication and division problems with an emphasis on counting groups, not ones. They count up by multiples, see multiplication as repeated addition, build rectangular arrays (a rectangle of unit squares whose dimensions are the factors of a multiplication problem), and use what they know about numbers and number relationships to derive answers to problems. Multiplication and division are learned together although computation work focuses on multiplication facts.

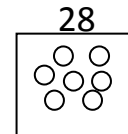
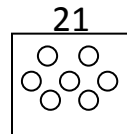
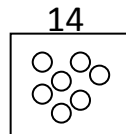
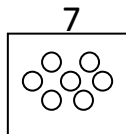
Multiplication as Repeated Addition

Children in third grade skip count multiples (repeated addition) to build the concept of multiplication and division:

$$4 + 4 + 4 + 4 + 4 + 4 + 4 = 28$$

$$28 - 4 - 4 - 4 - 4 - 4 - 4 - 4 = 0$$

$$4 \times 7 = 28$$

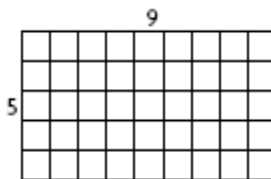


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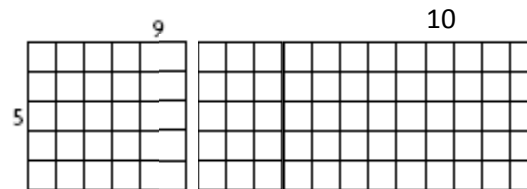
Using Arrays

Third graders use rectangular arrays to represent multiplication problems:

$$5 \times 9 = 45$$



$$5 \times 19 = 95$$



Two Kinds of Division

There are two distinct kinds of division problems. Students find the first type of division problem easier to solve. It is called *Sharing*. The second type is called *Partitioning*.

I have 18 balloons for my party. After the party is over, I'm going to divide them evenly between my sister and me. How many balloons will each of us get?

I have 18 balloons for my party. I'm going to tie them together in bunches of 2 to give to my friends. How many bunches can I make?

Third Grade Computational Fluency

Third grade students work on understanding multiplication and division. By the end of third grade, they should be able to derive multiplication facts—to use known facts and relationships to figure out combinations that are unknown. Some multiplication facts will be at a level where they can easily be recalled.