Computation Strategies in Fifth Grade

Children in fifth grade focus on multiplication and division strategies with an emphasis on counting groups, not ones. They build on the work started in third and fourth grades with an emphasis on rectangular arrays (a rectangle of unit squares whose dimensions are the factors of a multiplication problem), clusters of problems, and the relationship between multiplication and division. Computation work focuses on mastering division facts and becoming fluent in multi-digit multiplication and division algorithms.

Multi-digit Addition Strategies

Adding left to right: 346 + 518

300 + 500 = 800
40 + 10 = 50
6 + 8 = 14
800 + 50 + 14 = 864

Breaking apart one number: 346 + 518

346 + 500 = 846
846 + 10 = 856
856 + 8 = 864

Rounding and adjusting: 346 + 518

350 + 510 = 860
860 + 8 = 868
868 − 4 = 864

Changing both numbers to an equivalent problem that is easier to solve: 346 + 518

346 + 518 = (346 + 4) + (518 − 4)
350 + 514 = 864

Multi-digit Subtraction Strategies

Breaking apart and subtracting: 763 - 239

763 − 200 = 563
563 − 30 = 533
533 − 9 = 524

Adding Up to subtract: 763 - 239

239 + 1 = 240
240 + 500 = 740
740 + 23 = 763
1 + 500 + 23 = 524

Rounding and adjusting: 763 - 239

763 − 240 = 523
523 + 1 = 524

Changing both numbers to an equivalent problem that is easier to solve by adding one to both numbers: 763 - 239

763 - 239 = (763 + 1) - (239 + 1)
764 − 240 = 524

Fifth Grade Computation Strategies—continued

Multi Digit Multiplication Strategies

Breaking numbers apart: 16 x 12

$$16 \overbrace{ 12}$$
$$10 \quad 6$$

10 x 12 = 120
6 x 12 = 72
120 + 72 = 192

Partial Products: 16 x 12

```
      16
   x  12
      12 (2 x 6)
      20 (2 x 10)
      60 (10 x 6)
     100 (10 x 10)
     192
```

Breaking apart one number into landmark numbers that are easier to multiply: 58 x 6

58 x 6 = (50 + 8) x 6
(50 + 8) x 6 = (50 x 6) + (8 x 6)
300 + 48 = 348

Round up and adjusting: 58 x 6

58 x 6 = (60 x 6) – (2 x 6)
360 – 12 = 348

Rounding down and adjusting: 104 x 31

104 x 31 = (100 x 31) + (4 x 31)
3100 + 124 = 3224

Multi Digit Division Strategies

Partial Quotients: 83 ÷ 6

```
6 ) 83
    60  = 10 x 6
    23    How many more 6's in 23?
    18  = 3 x 6
     5    There are 13  6's in 83 remainder 5
```

Big Seven Division

```
32 ) 837   20
     640
     197    5
     160
      37    1
      32
       5   26  remainder 5
```

Fifth Grade Computational Fluency

Fifth grade students continue work with multiplication and division. By the end of fifth grade, students will have division facts at a level where they can easily recall them. They will be developing two efficient, accurate algorithms for multi-digit addition, subtraction, multiplication and division. Multi-digit computation work will continue in sixth grade.