Grade 3: **Addition**

Strategy: Partial Sums

Each addend is broken apart by place value, each place value is added and then the partial sums and added.

Example:

**248 + 345=**

200+300=500

40+40=80

8+5=13

500+80+13=593

Strategy: Adjusting

Value from one addend is given to the other addend to create an easier problem.

326 + 274

-1 +1

 325 + 275 =500

Strategy: Number Line and Adjusting

The number line breaks the addend into smaller chunks and demonstrates calculations that the student can solve mentally.

516+179=

 +100 +80 -1 =179

 516 616 696

 **695**

Strategy: **Subtraction**

Count Up or Count Down on a Number Line

536-179

 **+21** **+300** **+36**

 179 200 500 536

**300+21+36=357**

 -21 -300 -36

 179 200 500 536

Strategy: Use friendly number to make it easier to solve mentally.

4,000 - 563 =

-1 -1

3,999 - 542 =

The difference is the same, but easier to solve by subtracting each place value.

3999

- 542

 3457

**Multiplication**

In Third grade students develop an understanding of multiple representations of the same value. They can look at 4X8 in many different ways.

**Repeated Addition**

8+8+8+8

4+4+4+4+4+4+4+4

**Sets**

4 groups of 8

Each 4 octagons have 8 sides= 32 sides

9 groups of 4

Each 8 squares have 4 sides = 32 sides



Array/Area Model

The array model (squares showing) and the area model (squares not showing) for multiplication and the distributive property are used to solve multiplication problems.

Array Model for 8X7

 X 5 + 2

 

8

 (8X5) (8X2)

Area Model for 8X7



Students move from the array model to working with partial products.

8X7

7=5+2

(8X5) + (8X2) = 40 + 16 = 56

Multiply by powers of 10

3X1=3 3X4=12

3X1 ten = 3 tens 3X4 tens = 12 tens

3 X 10 = 30 3X40=120

Strategy:

Strategy: Doubling and Halving

If you half one factor and double the other factor your product is the same.



For 6X8 you will take half of 6 and double the 8 leaving an array that is 6X8=(3X8)+(3X8)

**Division**

Connect division to basic multiplication facts.

3X4 = 12 12 ÷4 = n

Think 4 times what equals 12.

Equal Shares

How many times can I make 4 equal groups if I start with 12 objects?

4 Cubes

4 Cubes

4 Cubes

 12-4=8 8-4=4 4-4=0 cubes left.

You can make 3 equal groups.

OR

How many will fit in 4 different cups is I start with 12 objects?



There are 3 objects in each cup.

GRADE 3

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STRATEGIES FOR COMPUTATION

Goal: students should move towards efficiency, choosing a strategy that solves the problem quickly and accurately and one that they can explain.