Useful Vocabulary

Complements: Children are encouraged to learn number bonds to ten and one hundred, or ways of making 10 and 100

E.g. Complements to make ten could be   2+8 or 4+6

Complements to make 100 could be 20+80 or 36+ 64

Inverse: In general addition and subtraction are inverse (opposite) operations. Doubling and halving are inverse operations. Multiplication and division are also inverse operations.

E.g.   If you know:
3+7=10   then you also know 10-3=7 or 10-7=3

3x7=21   then 21÷7=3 or 21÷3=7

If you know *double 6 is 12* you also know *half of 12 is 6.*

Partitioning:
Splitting a number in to tens and units and so on.

E.g. 53=50 + 3   253=200 + 50 + 3   4765=4000 + 700 + 60 + 5

You can also split single digit numbers into parts

Eg 7 is 5 + 2   8 is 5 + 3

Addition

It is not only important that your child gets the correct answer but also that they understand what they are doing. These are **some** examples of how children may record addition problems.

$49 + 31 + 25 =$

Add the tens: $40 + 30 + 20 = 90$
Add the units: $9 + 1 + 5 = 15$
Now add the tens and units total: $90 + 15 = 105$

This may also be recorded like this:

$$\begin{array}{r} 49 \\ 31 \\ +25 \\ \hline 90 \\ +15 \\ \hline 105 \end{array}$$

> **The language is important**. When adding the tens we would still say 40+30+20 not 4+3+2

This format also applies when hundreds appear.

$123 + 145 + 156 = 300 + 110 + 14 = 424$

$$\text{or} \quad \begin{array}{r} 123 \\ 145 \\ +156 \\ \hline 300 \\ 110 \\ 14 \\ \hline 424 \end{array}$$

With trickier multiplication problems we apply this principle using the grid method.

E.g. 164 x 6=

	100	60	4
6	600	360	24

600 + 360 + 24 = 984

> We ask the children to look for friendly numbers to add together first.

E.g. 23 x 38 =

	30	8
20	600	160
3	90	24

600 + 160 + 90 + 24 = 700 + 170 + 4 = 874

Please do not say that we multiply by ten by adding zero to a number or by moving the decimal point. The digits move one place to the left and the zero becomes a place holder
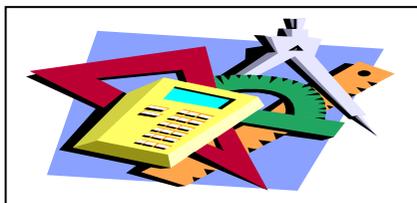
Division

Children often find division difficult, so we teach this as the opposite of multiplication and show them that they can turn a division sum into a multiplication sum.
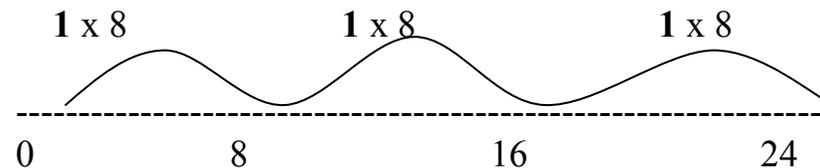
E.g. 35 ÷ 5   5 x □ = 35

72 ÷ 8   8 x □ □ = 72

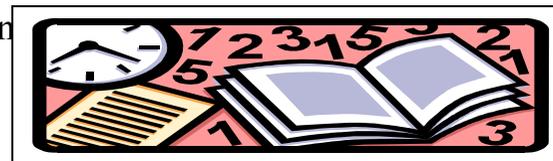If children know their tables they are able to complete these calculations more easily.

We also reinforce the idea that division is repeated addition and encourage the use of the empty number line. We say "How many groups of 8 do we need to make 24?"

24 ÷ 8 =

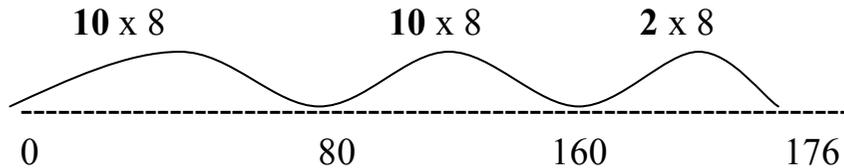**1** x 8   **1** x 8   **1** x 8

0   8   16   24

24 ÷ 8 = 3

Children coun... ...ogether

As numbers get bigger the children are encouraged to add together groups of numbers.

$$176 \div 8 =$$

10 x 8   **10** x 8   **2** x 8

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0                 80                160              176
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Children then add up how many sets of 8 they added:
$(10 + 10 + 2)$

Children are encouraged to make informal jottings of multiplication facts they know to help them with their calculation.

E.g. $10 \ x \ 8 = 80$
$20 \ x \ 8 = 160$
$5 \ x \ 8 = 40$
$2 \ x \ 8 = 16$
$4 \ x \ 8 = 32$

Multiplication

Please encourage your child to learn their tables. They are VERY important in many aspects of life.

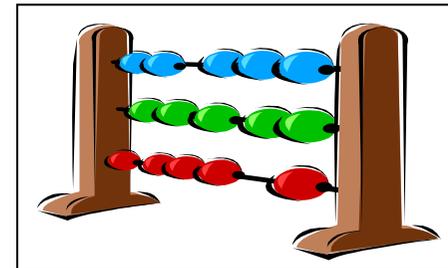We reinforce the message that multiplication is repeated addition.

E.g. $7 \ x \ 8 = \ 8 + 8 + 8 + 8 + 8 + 8 + 8 = 56$

Or $\quad 8 \ x \ 7 = \ 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 = 56$

When tackling multiplication calculations we encourage children to split numbers into their place value groupings and to multiply each number separately.

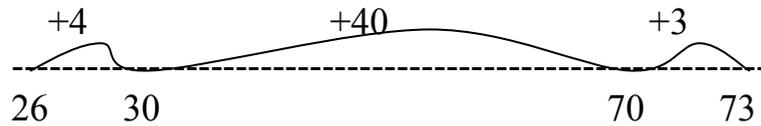E.g. $58 \ x \ 4 = \quad (50 \ x \ 4) \ + (8 \ x \ 4) = \quad 200 + 32 = 232$

$70 \ x \ 4 = \quad 7 \ x \ 4 \ x \ 10 = \quad 280$

Subtraction

Children are encouraged to understand subtraction as 'finding the difference' between the smallest and largest number. They use an empty number line and the process of counting on.

Children might draw a number line to show their working to solve this calculation: $73 - 26 =$
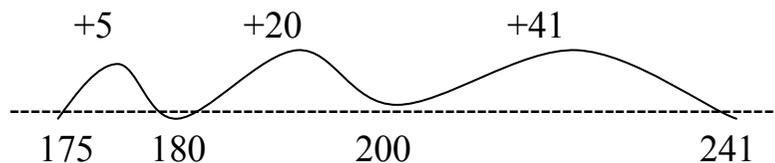

$40 + 4 + 3 = 47$ so $73 - 26 = 47$

Children often prefer to jump to the nearest multiple of ten but will choose to jump in chunks they feel comfortable with.
Children will be encouraged to jump in numbers that will be easier to total. As their understanding develops they will 'refine' their jumps and become more efficient
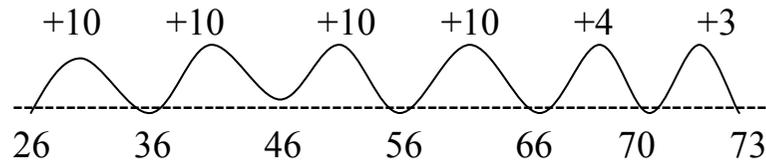
$10 + 10 + 10 + 10 + 4 + 3 = 47$

$241 - 175 = 66$

This booklet has been compiled to outline some of the approaches in teaching and recording calculations throughout school. You will notice many changes in the way children are taught to record their calculations, the aim being to encourage understanding and not just teaching tricks!

It is important that children understand what they are doing when they complete calculations. We want them to be able to apply their skills to a variety of situations and not just repeat a process which is meaningless to them. Children are taught strategies to tackle calculations mentally and to make informal jottings to help them before a formal method is used.

Mathematics
Calculations Booklet
Information for parents about approaches in numeracy.

North Stainley CE Primary School