Language of Number Operations

## Number Operations ~ Addition



## Number Operations ~ Subtraction

| Subtraction Algorithm (Written recording) | Language Used |
| :--- | :--- |
| First Class | First Class |



## Number Operations ~ Multiplication

| Multiplication Algorithm (Written recording) | Language Used |
| :---: | :---: |
| Third - Sixth Class <br> Develop an understanding of multiplication as repeated addition and vice versa <br> Explore, understand and apply the: <br> Zero: $5 \times 0=0 / 0 \times 7=0$ <br> Commutative: $3 \times 4=4 \times 3$ <br> Distributive: $5 \times 4=(3 \times 4)+(2 \times 4)$ <br> properties of multiplication $\begin{array}{r} 26 \\ \times 25 \\ \hline 130 \\ +520 \\ \hline 650 \end{array}$ | Third - Sixth Class <br> Emphasis is placed on subtraction as the inverse of addition. <br> Subtraction is recorded concretely, orally, pictorially, in number sentences, in jumps on the number line, and on notation boards. <br> Start at the bottom saying: <br> "Five groups of six equals 30. I write 30 under the line." <br> Start at the bottom saying: <br> "Five groups of six equals thirty. Thirty is three tens and zero units. I put the zero under the line in the units place. I put the three tens on the line to add to the other tens. Five groups of two tens are ten tens plus three tens is thirteen tens. I write thirteen under the line." <br> Start at the bottom saying: <br> "Five groups of six equals thirty. Thirty is three tens and zero units. I put the zero under the line in the units place. I put the three tens on the line to add to the other tens. Five groups of two tens are ten tens plus three tens is thirteen tens. I write thirteen under the line. <br> Five groups of twenty six are one hundred and thirty. <br> What am I multiplying by next? By two tens. <br> Because I am multiplying by a multiple of ten, I put down a zero. <br> Two groups of six are twelve. Two groups of two are four and one is five. <br> Twenty groups of twenty six are five hundred and twenty. |


|  | Now I must add one hundred and thirty and five <br> hundred and twenty ....". |
| :---: | :--- |
|  | Emphasis is placed on the teaching of multiplying by <br> ten and how it changes a number e.g. <br> $6 \times 10$ <br> $53 \times 10$ |
| $254 \times 10$ |  |
| Children are taught that when a number is |  |
| multiplied by ten, the number gets ten times bigger. |  |
| Each digit is then moved one place to the left. |  |
| In numbers with a decimal point, it is emphasised |  |
| that the digits move and the decimal point always |  |
| remains in the same position. |  |

## Number Operations ~ Division

| Division Algorithm (Written recording) | Language Used |
| :---: | :---: |
| Third - Sixth Class | Third - Sixth Class |
| Develop an understanding of division as sharing and as repeated subtraction, without and with remainders |  |
|  | "Six shared between six equals one". |
| $6 \div 6=1$ |  |
|  | "Six divided by six equals one" (Sixth Class). |
|  | "Twelve shared between how many equals two". |
| $12 \div \square=2$ |  |
|  | "Twelve divided by what number equals two" (Sixth Class) |
| $\square \div 4=5$ |  |
|  | "How many shared between four equals five" or |
|  | "What number divided by four equals five" |
| 632 |  |
| 05R 2 | "Thirty two shared between six. |
|  | Can I share three tens between six? |
|  | I cannot. I write down zero below the line. |
|  | Thirty two shared between six. Each gets five. |
|  | There are two left over". |


| 018 |
| :---: |
| 25458 |
| 25 |
| 208 |
| 200 |
| 8 |

Children are taught a number of strategies to help them become more efficient when working on long division:

1. Estimation - using rounding
2. Calculating multiples of a number using the front-end strategy
"Four hundred and fifty eight shared between twenty five.
Can I share four hundreds between twenty five?
I cannot. I write zero above the line.
Can I share forty five tens between twenty five?
Yes, each gets one ten. I write one ten above the line.
Twenty five get one ten each - this is twenty five.
I take away twenty five to see how many I have left.
I write twenty five under forty five and I take away.
I bring down my eight units.
Two hundred and eight units shared between twenty five. Each gets eight. I write the eight above the line.
Twenty five get eight units each. This is two hundred.
I take away two hundred to see how many I have left.
I have eight left.
Four hundred and fifty eight shared between twenty five - each gets eighteen and there are eight left over.
The answer is $18 \mathrm{R} 8 .{ }^{\prime \prime}$
