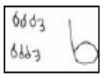
Rhodes Avenue Primary School Calculation Policy for addition Year 1

Mental Calculations

- **Read, write and interpret mathematical statements using symbols +, -, =**
- **Represent and use number bonds and related addition facts within 20**
- **Add one digit and two-digit numbers up to 20, including zero.**
- **Solve one-step problems using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9**
- **Given a number, identify (and use the language) one more**

Written Calculations

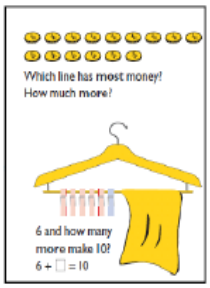
- Begin to compare (what's the same/different?) for commutative sums e.g 3 +7 = 7 + 3
- *Memorise and reason with number bonds to 10 & 20 in several forms*
- Add using objects, Numicon, cubes etc and number lines and tracks
- Check with everyday objects
- Ensure pre-calculation steps are understood, including:
  - Counting objects (including solving simple concrete problems
  - Conservation of number:
  - Recognise place value in numbers beyond 20
  - Counting as reciting and as enumerating

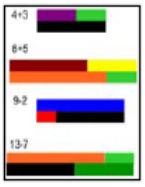


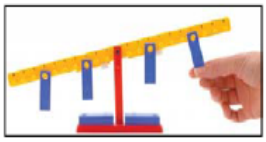
1 2 3

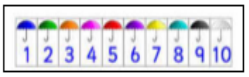
Representations to support mental and written calculations.

Use a range of concrete and pictorial representations, including:



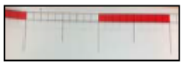






Number lines

Bead strings



Number tracks

Real everyday objects

Links from other strands

- *Combine and increase numbers, counting forwards and backwards.*
- *Develop the concept of addition and subtraction and … use these operations flexibly.*
- *Discuss and solve problems in familiar practical contexts, including using quantities*
- *Compare, describe and solve practical [measure] problems e.g. longer, more than, heavier than*
- Problems terminology should include: put together, add, altogether, total, take away, distance between, difference between, more than and less than.

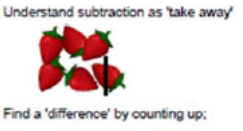
Rhodes Avenue Primary School Calculation Policy for subtraction Year 1

Mental Calculations

Subtract one digit and two-digit numbers to 20, including zero.
Read, write and interpret mathematical statements using symbols (+, -, =) signs.
Represent and use number bonds and related addition facts within 20
Solve one-step problems using concrete objects and pictorial representations, and missing number problems such as 7 = - 9

Memorise and reason with number bonds
Add using objects, Numicon, cubes etc and number lines and tracks
Check with everyday objects
Ensure pre-calculation steps are understood, including:
Counting objects,

Conservation of number



Written Calculations

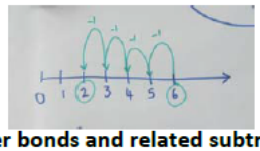
Subtract one-digit and two-digit numbers to 20, including zero.

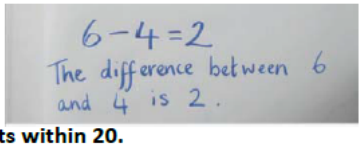
$7-3=\square$, $7-\square=4$

$\square-3=4$, $17-13=\square$

$17-\square=4$

Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs .





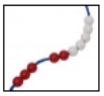
Represent and use number bonds and related subtraction facts within 20.

Representations to support mental and written calculations.

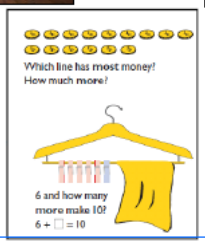
Use a range of concrete and pictorial representations, including:

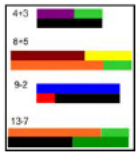
Straw bundles

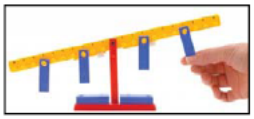
Hands, and children themselves.

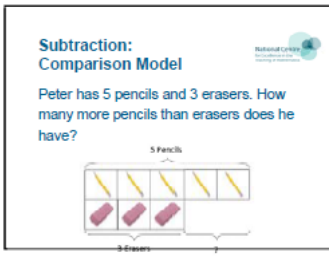


Bead strings, number tracks and lines









Fractions

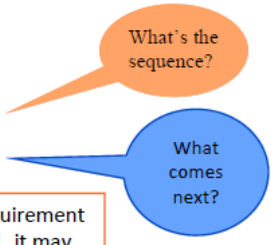
Links from other strands

Pupils should combine and increase numbers, counting forwards and backwards.
(They should) develop the concept of addition and subtraction and … use these operations flexibly. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.
(Number-addition and subtraction, Non-statutory guidance.)
Pupils discuss and solve problems in familiar practical contexts . *(Non-statutory guidance.)*
Pupils compare, describe and solve practical (measurement) problems .
(Measurement)

Rhodes Avenue Primary School Calculation Policy for multiplication Year 1

Mental Calculations

- **solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.**
- **Count in multiples of twos, fives and tens** with equipment, songs & rhythms, and including by rote
  - Counting 2s e.g. counting socks, shoes, animal legs…
  - Counting in 5 s e.g. counting fingers, fingers in gloves, toes …
  - Counting in 10s e.g. counting fingers, toes …
- Doubles up to 10
- Recognising odd and even numbers
- Write as a number pattern (e.g. 5, 10, 15…; 2, 4, 6…; 10, 20, 30…)



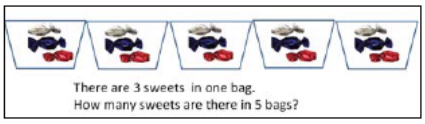
Written Calculations

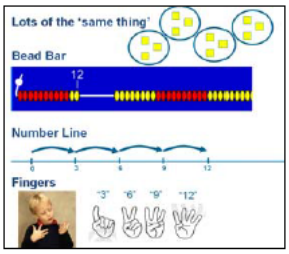
It is important to use a range of models to develop understanding of multiplication, and that children make connections between arrays, number patterns, and counting in twos, fives and tens

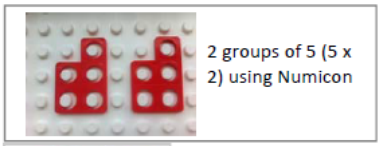
Although there is no statutory requirement for written multiplication in Year 1, it may be helpful to encourage children to begin to write it as a repeated addition sentence in preparation for Year 2
E.g. 2 + 2 + 2 + 2 = 8

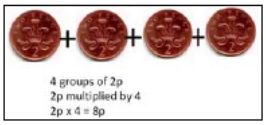
Representations to support mental and written calculations.

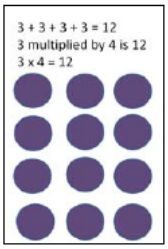
Use a range of concrete and pictorial representations, including:

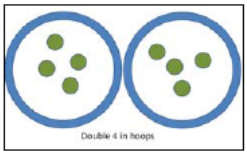


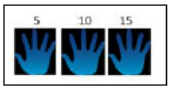












Links from other strands

- **Count in multiples of twos, fives and tens (**from Number and place value), as above
- *Counting in twos, five and tens from different multiples to develop their recognition of patterns in the number system*
- *They discuss and solve problems in familiar practical contexts, including using quantities.*

Rhodes Avenue Primary School Calculation Policy for division Year 1

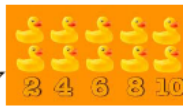
Mental Calculations

Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

(Pupils) make connections between arrays, number patterns, and counting in twos, fives and tens.

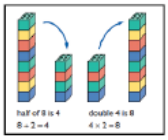
Count on or back in 2s, 5s and 10s and look for patterns.

Songs are useful for counting in steps.

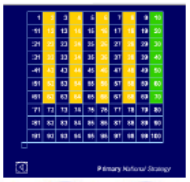


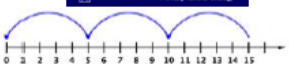
Written Calculations

Pictorial jottings to support the calculation of 8 ÷ 4



Children should experiment with the concepts of sharing and grouping in a number of contexts. Initially they use their own recording—moving towards fluent, symbolic notation in Year 2. Conceptual understanding and recording should be continuously supported by the use of **arrays** as a default model, as well as other representations, (see below.)





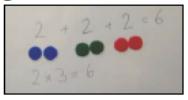
The relationship between multiplication and division must be continually considered.

Representations to support mental and written calculations.

Use a range of concrete and pictorial representations, including:

- Manipulatives to support children's own recording; and understanding of *sharing* and the link with multiplication.

  "How can we share 6 cakes between 2 people?"

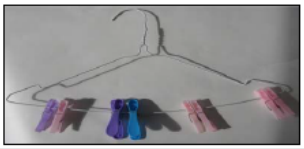


Here, the cakes are placed in an array formation.

How many 2 tiles can we fit on the 6 tile?

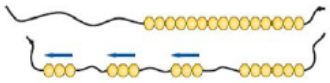
Moving from concrete to pictorial, counters represent the cakes to reinforce the relationship between multiplication and division.

- Manipulatives, and real-life objects to support children's own recording; and understanding of *grouping* and the link with multiplication.



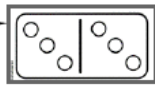
Coat hangers and socks support calculation of 8÷2

Bead strings



15 ÷ 2 using grouping model

"Double 3 is 6. Half of 6 is 3."



- Dominoes and dice to reinforce concepts of doubling and halving.

Fractions

Recognise, find and name a half as one of two equal parts of an object, shape or quantity
Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. (*See* Representations *above.)*

Links from other strands

They practise counting as reciting numbers and counting as enumerating objects, and counting in twos, fives and tens from different multiples to develop their recognition of patterns in the number system (for example, odd and even numbers). (PLACE VALUE).
Pupils are taught half and quarter as 'fractions of' by solving problems using shapes, objects and quantities. (FRACTIONS)