

Perton Primary Academy

Calculation Policy 2023 -2024

Reception to Year 4
Multiplication and Division



Maths calculation Policy 2019-2020

This policy supports the White Rose maths scheme used throughout the school alongside Numicon, Nrich and NCTEM. Progression within each area of calculation is in line with the programme of study in the 2014 National Curriculum.

This calculation policy should be used to support children to develop a deep understanding of number and calculation. This policy has been designed to teach children through the use of concrete, pictorial and abstract representations.

Concrete representation— a pupil is first introduced to an idea or skill by acting it out with real objects. This is a 'hands on' component using real objects and is a foundation for conceptual understanding.

Pictorial representation - a pupil has sufficiently understood the 'hands on' experiences performed and can now relate them to representations , such as a diagram or picture of the problem.

Abstract representation—a pupil is now capable of representing problems by using mathematical notation, for example $12 \times 2 = 24$.

It is important that conceptual understanding , supported by the use of representation, is secure for all procedures. Reinforcement is achieved by going back and forth between these representations.

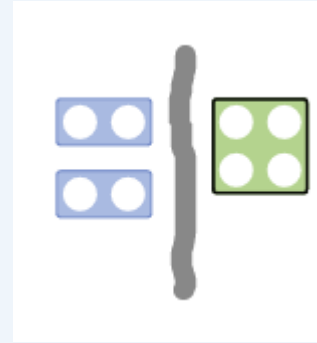
Multiplication (Reception)

Experiencing equal groups of objects

They will think about doubling when solving practical problems.

Children will experience equal groups of objects.

They will work on practical problem solving activities involving



Division (Reception)

Sharing practical objects.

Finding half of a collection.

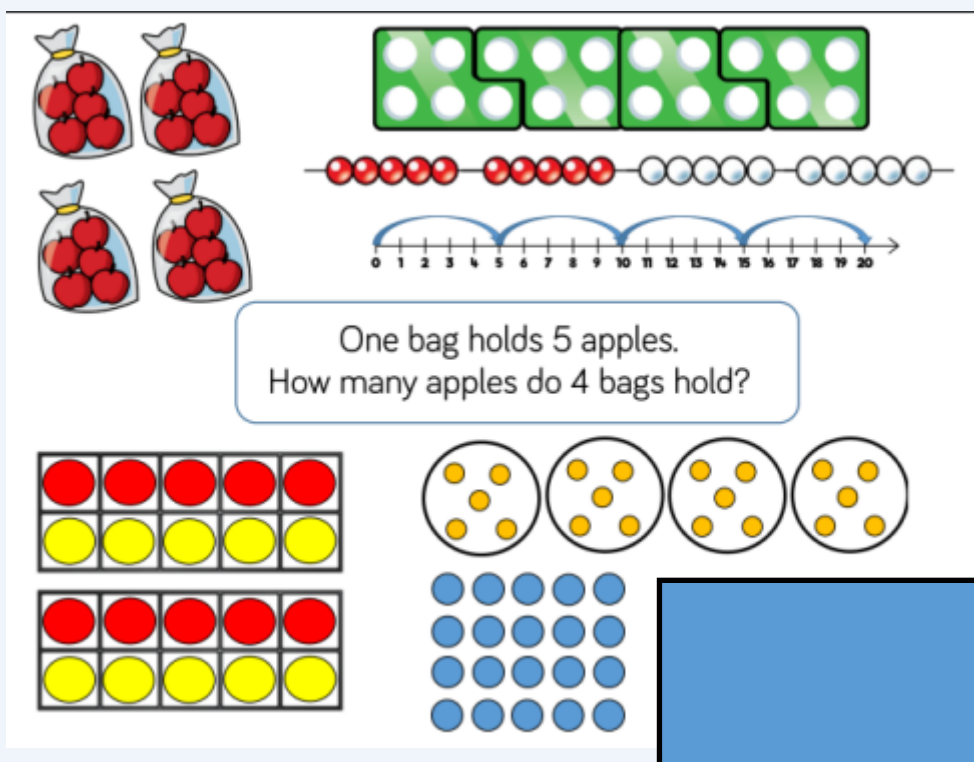
Hearing and being exposed to language to describe half and seeing visual representations.



Multiplication (Year 1)

Children represent multiplication as repeated addition in many different ways.

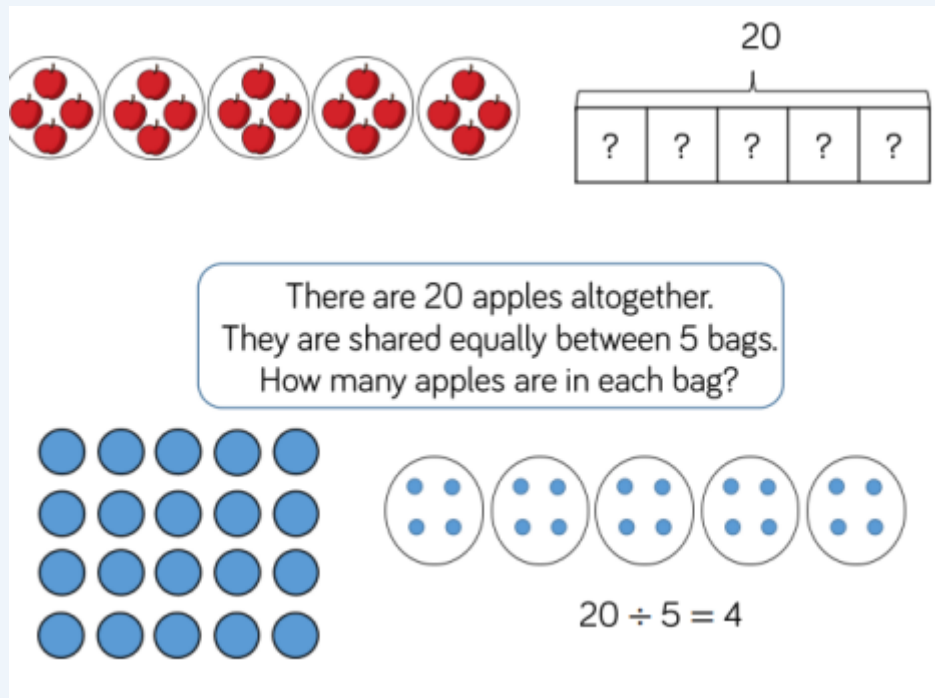
In Year 1, children use concrete and pictorial representations.



Division (Year 1)

Children solve problems by dividing into equal groups.

Children solve problems by grouping.



20

?	?	?	?	?
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There are 20 apples altogether.
They are shared equally between 5 bags.
How many apples are in each bag?

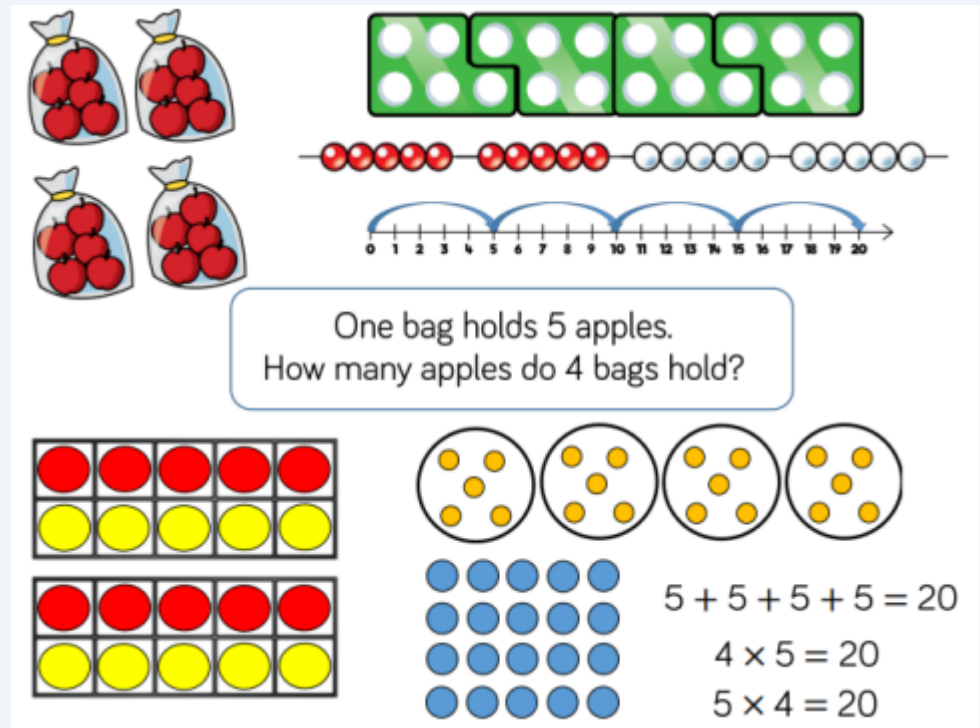
20 ÷ 5 = 4

Multiplication (Year 2)

Children represent multiplication as repeated addition in many different ways.

In Year 2, children use concrete and pictorial representations.

In year 2 children are introduced to the X symbol.



Division (Year 2)

Recall and use the division facts for 2, 5 and 10 multiplication tables.

Solve division problems in context by using concrete objects by sharing. Solve division problems in context using arrays. Solve division using grouping.

There are 20 apples altogether.
They are put in bags of 5.
How many bags are there?

$$20 \div 5 = 4$$

Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1

48

40

÷ 2

8

÷ 2

$48 \div 2 = 24$

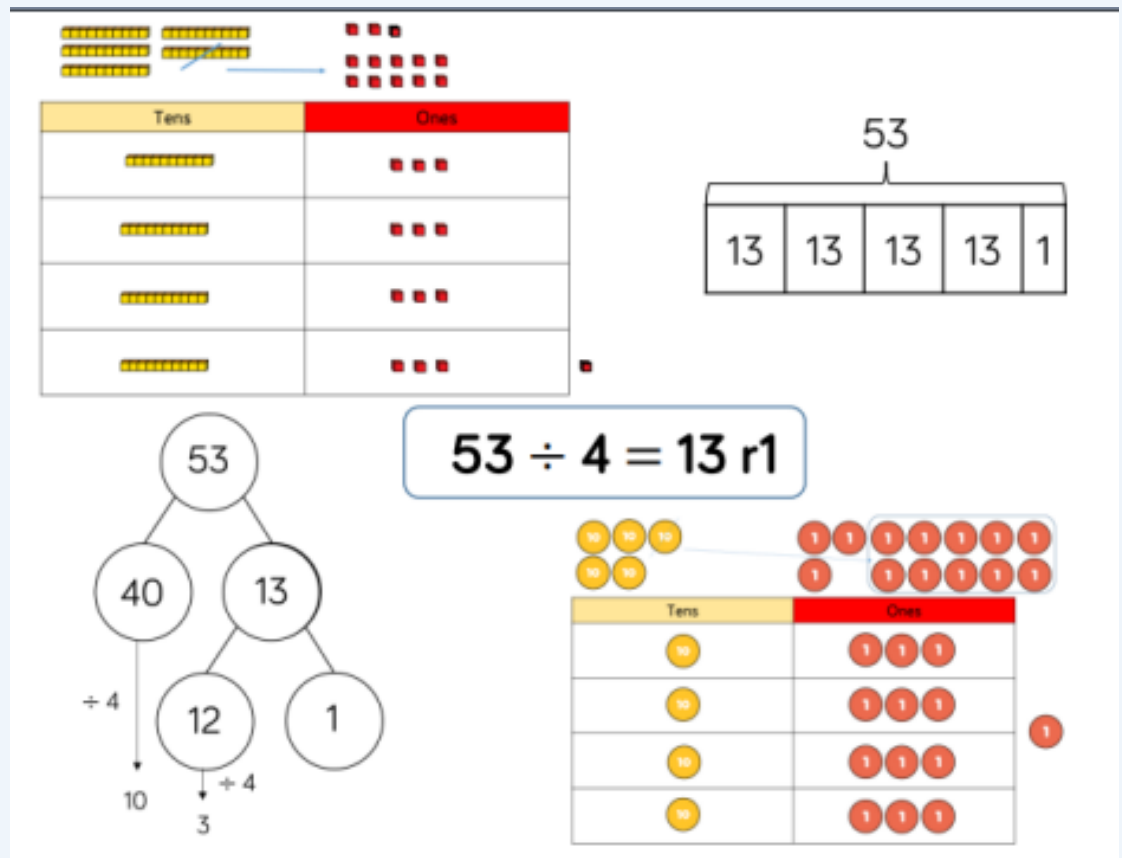
Multiplication (Year 3)

Division (Year 3)

Dividing and grouping understanding the concept of remainders. Dividing using short division

Once the children are secure with division as grouping and can demonstrate this on number lines, arrays etc. short division should be introduced.

It is important for the children to use the bar model in this way to encourage the use of it to aid problem solving.

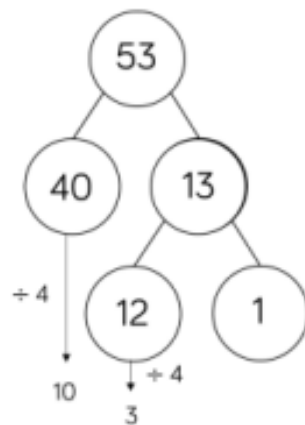


Multiplication (Year 4)

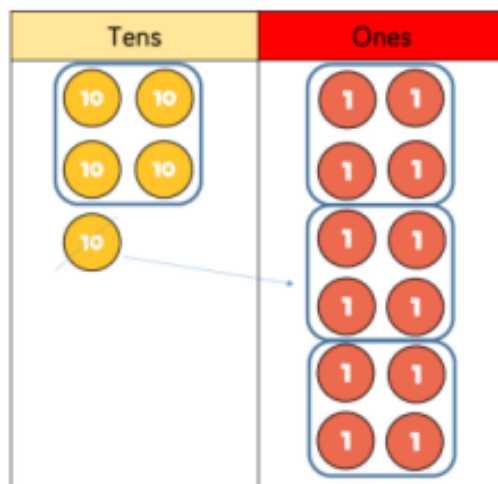
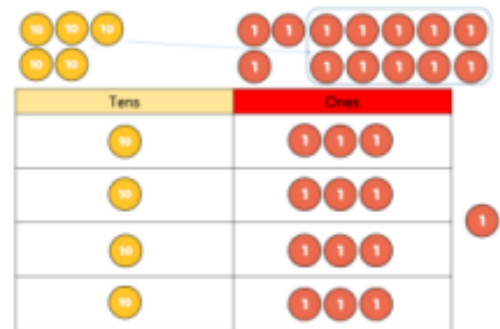
Division (Year 4)

Dividing 3 digit numbers by a 1 digit number using short division.

Divide using the bar model



$$53 \div 4 = 13 \text{ r}1$$



$$52 \div 4 = 13$$

