

# Calculation Methods

What should I expect my child to be doing in Year 2?

## Written methods:

### Addition

#### National Curriculum Expectations:

- Add numbers using concrete objects, pictorial representations, and mentally, including:
  - a two-digit number and ones
  - a two-digit number and tens
  - two two-digit numbers
  - adding three one-digit numbers
  
- record addition and subtraction in columns

#### Written Method:

1. Reinforce empty number line.
2. Expanded partitioning
3. Vertical partitioning

Handwritten addition on a grid showing expanded partitioning:

$$\begin{array}{r} \text{T} \quad \text{U} \\ 60 + 7 \\ + 20 + 2 \\ \hline 80 + 9 \end{array}$$

### Subtraction

#### National Curriculum Expectations:

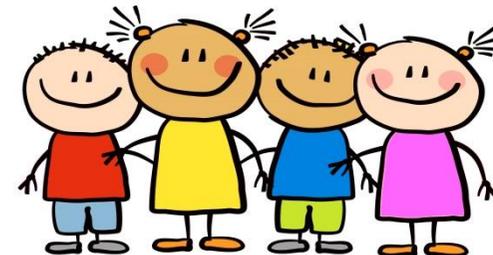
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  - a two-digit number and ones
  - a two-digit number and tens
  - two two-digit numbers
  
- record addition and subtraction in columns

#### Written Method:

1. Reinforce counting back on number line
2. Expanded partitioning

Handwritten subtraction on a grid showing expanded partitioning:

$$\begin{array}{r} \text{T} \quad \text{U} \\ 60 - 20 \\ \hline 40 + 5 \end{array} \qquad \begin{array}{r} \text{T} \quad \text{U} \\ 90 - 30 \\ \hline 60 + 4 \end{array}$$



# Multiplication

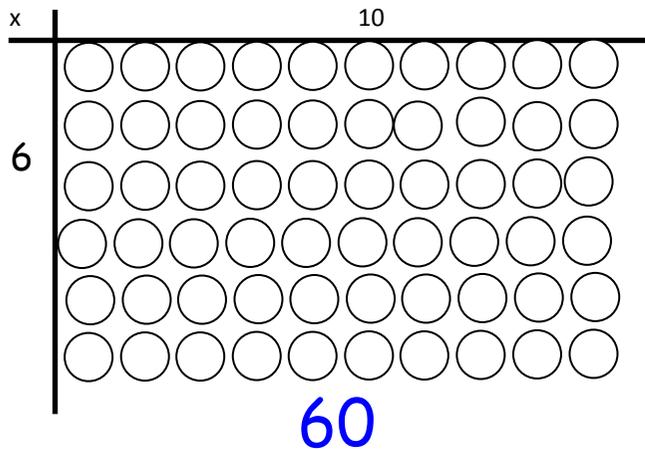
## National Curriculum Expectations:

- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs.
- solve problems involving multiplication using materials, arrays, repeated addition, mental method and multiplication facts.

## Written Method:

1. Consolidate repeated addition and arrays.
2. Visual grid method (using arrays to bridge the gap).

$$6 \times 10 =$$



# Division

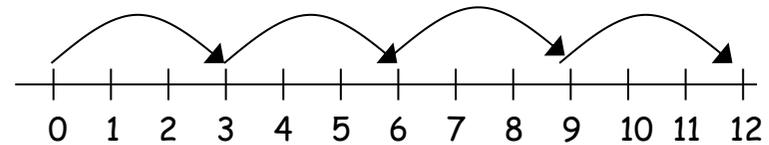
## National Curriculum Expectations:

- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs
- Solve problems involving division using materials, arrays, repeated addition, mental method and multiplication facts.

## Written Method:

1. Pictorial sharing and grouping
2. Repeated addition

$$12 \div 3 = 4$$



## Mental methods:

Alongside formal, written methods, our children will be equipped with a range of strategies to solve problems mentally. This table reflects the progression in the teaching and learning of mental methods of calculation in Key Stage 1. The majority of mental strategies will develop during numeracy lessons or guided numeracy sessions but discrete learning of mental methods may also be appropriate. Our children should look at a calculation and be able to say: **Can I work this out in my head? Do I need to use a written method? Do I need to use a calculator?**

	<b>Addition</b>	<b>Subtraction</b>	<b>Multiplication</b>	<b>Division</b>
Y1	Add T U + U and one digit and two digit numbers up to 20, using counting on.	Subtract 1 digit and 2 digit numbers to 20 including zero by counting back.	Doubling and halving numbers.	Halving even numbers up to 20.
Y2	Add T U + U; T U + T; and any 2 two digit numbers using mental partitioning	Subtract T U - U, T U - T and any 2 x 2 digit numbers using counting down. 76-57 76-50 -7	- Recall & use x facts (2,3, 5 &10) - Read/connect 10 x table to place value 5 x table to clock face - Variety & Language - Doubling & halving 2 digit numbers - Commutatively & associativity:- 4 x 5 = 20 5 x 4 = 20	Deriving division facts from x tables eg $6 \div 3 = 2$ (because $3 \times 2 = 6$ ). Fact Families. Halving numbers up to 50.
Y3	Add H T U + U; H T U + T; H T U + H using mental partitioning.	Subtract H T U - U, H T U - T, H T U - H using counting down.	- Use known facts to derive related facts. - Missing number problems (simple)	Use x tables to derive division facts up to 2 digit numbers. $3 \times 2 = 6$ $6 \div 3 = 2$ $60 \div 3 = 20$

*H = Hundreds*

*T = Tens*

*U = Units*