

*Learn with
us workshop*

*Maths in Year 4 at
Harborne Primary School*



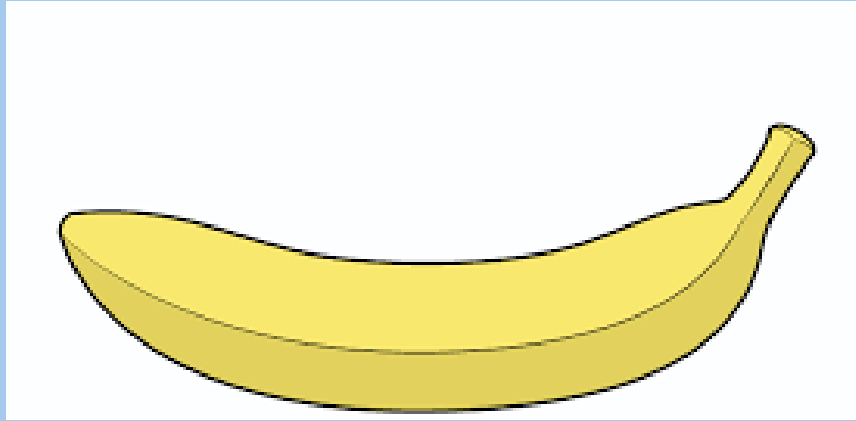
Year 4 Maths at HPS

We didn't do it like that when I was at school!

What is the CPA approach and why do we use it?



Concrete

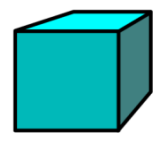


Pictorial

Banana

Abstract

What is the CPA approach and why do we use it?



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1. Concrete

- **What it is:** use physical, tangible objects to represent and manipulate mathematical concepts.
- **Example:** children may physically share objects

2. Pictorial

- **What it is:** Students move to visual representations, such as drawings, diagrams, or number lines.
- **Example:** Instead of using counters, the child would draw dots in a circle to show the objects

3. Abstract

What it is: Students use symbols, numbers, and equations to solve problems without the need for objects or pictures.

Example: At this stage, the child would use the division symbol to write and solve the calculation $8 \div 4 = 2$.

Ready to progress – what does that look like for your child?

Ready to progress statements are unique to each year group.

Year 3 conceptual prerequisite	Year 4 ready-to-progress criteria	Future applications
Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10.	4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.	Solve multiplication problems that involve a scaling structure, such as '10 times as long'.
Recognise the place value of each digit in <i>three</i> -digit numbers, and compose and decompose <i>three</i> -digit numbers using standard and non-standard partitioning.	4NPV-2 Recognise the place value of each digit in <i>four</i> -digit numbers, and compose and decompose <i>four</i> -digit numbers using standard and non-standard partitioning.	Compare and order numbers. Add and subtract using mental and formal written methods.
Reason about the location of any <i>three</i> -digit number in the linear number system, including identifying the previous and next multiple of 10 and 100.	4NPV-3 Reason about the location of any <i>four</i> -digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each.	Compare and order numbers. Estimate and approximate to the nearest multiple of 1,000, 100 or 10.
Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.	4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.	Read scales on graphs and measuring instruments.
Recall multiplication and division facts in the 5 and 10, and 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.	4NF-1 Recall multiplication and division facts up to 12×12 , and recognise products in multiplication tables as multiples of the corresponding number.	Use multiplication facts during application of formal written methods. Use division facts during application of formal written methods.

Year 3 conceptual prerequisite	Year 4 ready-to-progress criteria	Future applications
Use known division facts to solve division problems. Calculate small differences, for example: $74 - 72 = 2$	4NF-2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, for example: $74 \div 9 = 8 \text{ r } 2$ and interpret remainders appropriately according to the context.	Correctly represent and interpret remainders when using short and long division.
Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10), for example: $80 + 60 = 140$ $140 - 60 = 80$ $30 \times 4 = 120$ $120 \div 4 = 30$	4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100), for example: $8 + 6 = 14$ and $14 - 6 = 8$ so $800 + 600 = 1,400$ $1,400 - 600 = 800$ $3 \times 4 = 12$ and $12 \div 4 = 3$ so $300 \times 4 = 1,200$ $1,200 \div 4 = 300$	Apply place-value knowledge to known additive and multiplicative number facts, extending to a whole number of larger powers of ten and powers of ten smaller than one, for example: $800,000 + 600,000 = 1,400,000$ $1,400,000 - 600,000 = 800,000$ $0.03 \times 4 = 0.12$ $0.12 \div 4 = 0.03$
Multiply two-digit numbers by 10, and divide three-digit multiples of 10 by 10.	4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.	Convert between different metric units of measure. Apply multiplication and division by 10 and 100 to calculations involving decimals, for example: $0.03 \times 100 = 3$ $3 \div 100 = 0.03$
Understand the inverse relationship between multiplication and division. Write and use multiplication table facts with the factors presented in either order.	4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.	Recognise and apply the structures of multiplication and division to a variety of contexts.
	4MD-3 Understand and apply the distributive property of multiplication.	Recognise when to use and apply the distributive property of multiplication in a variety of contexts.

Ready to progress – what does that look like for your child?

Ready to progress statements are unique to each year group.

Year 3 conceptual prerequisite	Year 4 ready-to-progress criteria	Future applications
Reason about the location of fractions less than 1 in the linear number system.	4F-1 Reason about the location of mixed numbers in the linear number system.	Compare and order fractions.
Identify unit and non-unit fractions.	4F-2 Convert mixed numbers to improper fractions and vice versa.	Compare and order fractions. Add and subtract fractions where calculation bridges whole numbers.
Add and subtract fractions with the same denominator, within 1 whole, for example: $\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$	4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers, for example: $\frac{7}{5} + \frac{4}{5} = \frac{11}{5}$ $3\frac{7}{8} - \frac{2}{8} = 3\frac{5}{8}$ $7\frac{2}{5} + \frac{4}{5} = 8\frac{1}{5}$ $8\frac{1}{5} - \frac{4}{5} = 7\frac{2}{5}$	
Draw polygons by joining marked points.	4G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.	Draw polygons, specified by coordinates in the 4 quadrants.
Measure lines in centimetres and metres. Add more than 2 addends. Recall multiplication table facts.	4G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.	Draw, compose and decompose shapes according to given properties, dimensions, angles or area.
	4G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.	Draw polygons, specified by coordinates in the 4 quadrants: draw shapes following translation or reflection in the axes.

What are the key aspects of maths for my child?

- **Number and Place Value (NPV)** – the recognition and deeper understanding of 4 digit numbers, associating relationships across each place value column i.e. 1000 is 100x bigger than 10, also being able to divide these numbers into 2,4,5 and 10 on a number line.
- **Number Fluency (NF)** – have secure knowledge and application of multiplication facts up to 12x12, using knowledge of multiplication and addition for related facts and to be able to divide giving single remainders
- **Multiplication and Division (MD)** – the application of children's understanding of place value relationships to times and divide by 10 and 100 (staying within whole numbers), knowing the distributive properties of multiplication (5×10 is the same as $2 \times 10 + 3 \times 10$) and consolidate commutativity of the operations
- **Fractions (F)** – a heavy focus on mixed numbers and improper fractions – moving them beyond 1 to locate, add, subtract and reason about
- **Geometry (G)** – draw polygons given co-ordinates, identify regular 2D shapes and to reason about shapes using reflection and symmetry

What does work look like in your child's year group?

challenge

8b. Laura is trying to solve the calculation below.

$6 \div 6$


I think the answer is 0.

What has Laura done wrong? Draw a visual representation to show your answer.

*She is wrong because
 $6 \div 6 = 1$ not 0
 $0 \div 6 = 0$ ✓*

4NF-1

8b. Emily is putting biscuits in jars. She can put 9 biscuits in each jar and each jar is full.



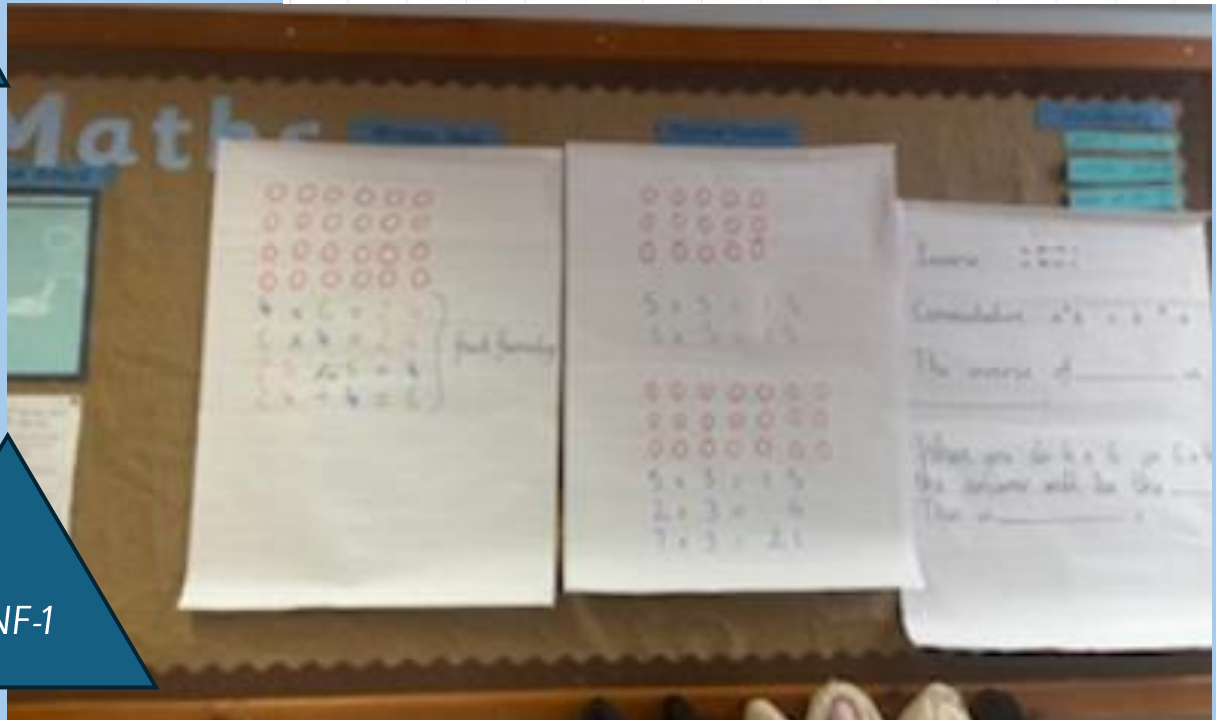
Emily has more than 70 biscuits but fewer than 100 biscuits. How many full jars might she have?

9, 10, 11, 8, 11

Jars. ✓

What other number? ✓

4MD-2



4NF-1

Can you see how your child's teacher has used the CPA approach?

Statutory assessments

- *In June 2026, your child will sit the MTC*
- *This is a check which tests their number fluency in their times tables up to 12 x 12*
- *Information has gone out to parents to explain this*

How can I help my child at home?



- *Times Table Rockstar – this uses algorithms to suit your child’s times table learning to their current gaps in knowledge*
- *PurpleMash and White Rose Infinity – online homework set weekly*
- *Both of these logins should be stuck in your child’s reading diary – please speak with your child’s class teacher if they are missing*
- *Times table practise at home*
- *Practise methods used in school – these are all on White Rose Infinity quizzes set by your child’s teacher*
- *Continue to consolidate past learning i.e. rapid recall of number bonds*

