A colorful border surrounds the central text, featuring various mathematical symbols and objects such as a pencil, a ruler, a calculator, a lightbulb, a cone, a cylinder, a globe, a book, a pencil, a number '3', a checkmark, a sine wave, a laptop, a lightbulb, and a green arrow.

# Welcome to our Maths Workshop

Y3/Y4

## *Session aims:*

- What does maths look like in Y3 and Y4?*
- How is maths taught at Birley Primary Academy?*
- How can children be supported?*

What are the National Curriculum Programmes of Study?

The link below will take you to the programmes of study for each year group. This shows you what your child will be learning when at school and what a child of that age is expected to achieve by the end of the year (Age Related Expectations).

[National Curriculum Programmes of Study for Key Stage 1 and Key Stage 2](#)

At Birley Primary Academy, our shared vision for mathematics is:

- To foster a sense of **curiosity** and **excitement** about the subject
- For every child to develop their mathematical **fluency** and to be able to **reason** and **problem solve** confidently.
- To provide a context for learning to ensure children develop an understanding of how mathematics is used in the wider world
- To provide a mathematics curriculum where children continually **build on** the knowledge they have already **mastered** and are able to make rich **connections** across mathematical ideas
- To enable children to confidently reason about their mathematics by promoting the use of **accurate mathematical language**
- To secure children's knowledge and accuracy when **recalling number facts**
- To develop children's mathematical thinking by using a range of models to support learning e.g. **concrete manipulatives** and pictorial representations, before moving onto abstract symbols
- To promote enjoyment of learning through **practical activity, exploration and discussion**
- To build **resilience** and promote a positive growth mind set in mathematics

# Y3 Programme of Study:

One Page Version

## Number and Place Value

- I can count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.
- I can recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
- I can compare and order numbers up to 1000.
- I can identify, represent and estimate numbers using different representations.
- I can read and write numbers up to 1000 in numerals and in words.
- I can solve number problems and practical problems involving these ideas

## Addition and Subtraction

- I can add and subtract numbers mentally, including:
  - a three digit number and ones;
  - a three-digit number and tens;
  - a three digit number and hundreds.
- I can add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.
- I can estimate the answer to a calculation and use inverse operations to check answers.
- I can solve problems, including missing number facts, place value, and more complex addition and subtraction.

## Multiplication and Division

- I can recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
- I can write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.
- I can solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which  $n$  objects are connected to  $m$  objects.

## Geometry- Properties of Shape

- I can draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.
- I can recognise angles as a property of shape or a description of a turn.
- I can identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.
- I can identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

## Measurement

- I can measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).
- I can measure the perimeter of simple 2-D shapes
- I can add and subtract amounts of money to give change, using both £ and p in practical contexts.
- I can tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
- I can estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.
- I can know the number of seconds in a minute and the number of days in each month, year and leap year.
- I can compare durations of events (for example to calculate the time taken by particular events or tasks).

## Fractions

- I can count up and down in tenths, recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.
- I can recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.
- I can recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.
- I can recognise and show, using diagrams, equivalent fractions with small denominators.
- I can add and subtract fractions with the same denominator within one whole (for example,  $5/7 + 1/7 = 6/7$ ).
- I can compare and order unit fractions, and fractions with the same denominators.
- I can solve problems that involve all of the above.

## Statistics

- I can interpret and present data using bar charts, pictograms and tables.
- I can solve one-step and two-step questions (for example, 'How many more?' and 'How many fewer?') using information presented in scaled bar charts and pictograms and tables.

# Y4 Programme of Study:

## Number and Place Value

- I can count in multiples of 6, 7, 9, 25 and 1000.
- I can find 1000 more or less than a given number.
- I can count backwards through zero to include negative numbers.
- I can recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones).
- I can order and compare numbers beyond 1000.
- I can identify, represent and estimate numbers using different representations
- I can round any number to the nearest 10, 100 or 1000.
- I can solve number and practical problems that involve all of the above and with increasingly large positive numbers.
- I can read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.

## Multiplication and Division

- I can recall multiplication and division facts for multiplication tables up to  $12 \times 12$
- I can use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers.
- I can recognise and use factor pairs and commutativity in mental calculations.
- I can multiply two-digit and three-digit numbers by a one-digit number using formal written layout.
- I can solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as  $n$  objects are connected to  $m$  objects.

## Measurement

- I can convert between different units of measure [for example, kilometre to metre; hour to minute].
- I can measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.
- I can find the area of rectilinear shapes by counting squares
- I can estimate, compare and calculate different measures, including money in pounds and pence
- I can read, write and convert time between analogue and digital 12- and 24-hour clocks.
- I can solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days

## Statistics

- I can interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- I can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

## Addition and Subtraction

- I can add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.
- I can estimate and use inverse operations to check answers to a calculation.
- I can solve addition and subtraction two-step problems in context, deciding which operations and methods to use and why.

## Geometry- Properties of Shape

- I can compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.
- I can identify acute and obtuse angles and compare and order angles up to two right angles by size.
- I can identify lines of symmetry in 2D shapes presented in different orientations.
- I can complete a simple symmetric figure with respect to a specific line of symmetry.

## Fractions

- I can recognise and show, using diagrams, families of common equivalent fractions
- I can round up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- I can solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.
- I can add and subtract fractions with the same denominator.
- I can recognise and write decimal equivalents of any number of tenths or hundredths.
- I can recognise and write decimal equivalents to  $1/4$ ,  $1/2$ ,  $3/4$ .
- I can find the effect of dividing a one or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- I can round decimals with one decimal place to the nearest whole number.
- I can compare numbers with the same number of decimal places up to two decimal places.
- I can solve simple measure and money problems involving fractions and decimals to two decimal places.

## Position and Direction

- I can describe positions on a 2D grid as coordinates in the first quadrant.
- I can describe movements between positions as translations of a given unit to the left/ right and up/down.
- I can plot specified points and draw sides to complete a given polygon.

YEAR 4

Maths Objectives

# Coverage Throughout the Year

Maths lessons are carefully planned throughout the year to ensure full coverage of the National Curriculum Programmes of Study. Please see the overview below for Y3 and Y4.

Y3

|          | Week 1                                 | Week 2                                 | Week 3                              | Week 4                               | Week 5               | Week 6        | Week 7 |
|----------|----------------------------------------|----------------------------------------|-------------------------------------|--------------------------------------|----------------------|---------------|--------|
| Autumn 1 | Number:<br>Place Value                 |                                        | Number:<br>Addition and Subtraction |                                      |                      |               |        |
| Autumn 2 | Number:<br>Addition and<br>Subtraction | Number:<br>Multiplication and Division |                                     |                                      |                      | Consolidation |        |
| Spring 1 | Number:<br>Multiplication and Division |                                        |                                     | Measurement:<br>Length and Perimeter |                      |               |        |
| Spring 2 | Number:<br>Fractions                   |                                        |                                     | Measurement:<br>Mass and Capacity    |                      |               |        |
| Summer 1 | Number:<br>Fractions                   |                                        | Measurement:<br>Money               |                                      | Measurement:<br>Time |               |        |
| Summer 2 | Measurement:<br>Time                   | Geometry:<br>Shape                     |                                     | Statistics                           |                      | Consolidation |        |

Y4

|          | Week 1                              | Week 2                              | Week 3             | Week 4                            | Week 5                           | Week 6        | Week 7 |
|----------|-------------------------------------|-------------------------------------|--------------------|-----------------------------------|----------------------------------|---------------|--------|
| Autumn 1 | Number: Place Value                 |                                     |                    |                                   | Number: Addition and Subtraction |               |        |
| Autumn 2 | Measurement:<br>Area                | Number: Multiplication and Division |                    |                                   |                                  | Consolidation |        |
| Spring 1 | Number: Multiplication and Division |                                     |                    | Measurement: Length and Perimeter |                                  | Consolidation |        |
| Spring 2 | Number: Fractions                   |                                     |                    |                                   | Number: Decimals                 |               |        |
| Summer 1 | Number: Decimals                    |                                     | Measurement: Money |                                   | Measurement: Time                |               |        |
| Summer 2 | Geometry: Shape                     |                                     | Statistics         | Geometry: Position and Direction  |                                  | Consolidation |        |



# What does work look like in Y3?

3.10.2023

I T TA SCAP

L.O: Know that when ones are added or subtracted from a 3-digit number, the ones column changes every time.

Steps for success:

- I can use place value counters to find one more and one less than a 3 digit number.
- I can complete and write number sentences adding or subtracting ones from a 3 digit number.

Teacher Self Peer

345 + 4 = 349

349 - 5 = 344

825 + 3 = 828

823 + 2 = 825

101 + 5 = 106

109 - 2 = 107

467 - 1 = 466

467 - 2 = 465

one less than number one more

|       |       |       |
|-------|-------|-------|
| 555 ✓ | 556 ✓ | 557 ✓ |
| 603   | 604   | 605   |
| 563   | 564   | 565   |
| 898   | 899   | 900   |
| 954   | 955   | 956   |
| 299   | 300   | 301   |
| 508 ✓ | 509   | 510 ✓ |

18.9.2023

I T TA SCAP

L.O: Understand that numbers can be partitioned in multiple ways.

Steps for success:

- I understand that a number can be partitioned in different ways, other than in hundreds, tens and ones.
- I can represent the number 417 partitioned in multiple ways using a number sentence and part-part-whole.

Fill in the number sentences to show different ways of partitioning 417:

417 = 200 + 200 + 10 + 7

417 = 200 + 20 + 7

417 = 300 + 114 + 3

In pairs, use dienes to work out the missing number:

572

485

500 60 12 ✓

300 185 ✓

True or false? Show your working out!

True false  
fat

300 + 150 + 4 = 200 + 50 + 204

354

454

25

300 150 4

200 50 204

One counter has fallen off the place value chart.

| Hundreds | Tens | Ones |
|----------|------|------|
| ●●●      |      | ●    |

What could the number have been?

302 ✓, 311 ✓, 404 ✓

# What does work look like in Y3?

WALT: know and be able to use and apply number bonds within 10. 2.10.23

Using concrete manipulatives to develop our understanding of the number bonds to 10.

Creating our own part whole models and number sentences that they showed.

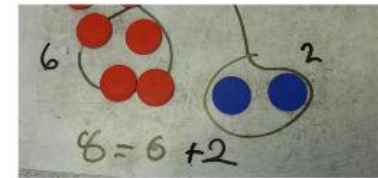
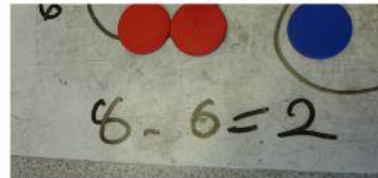
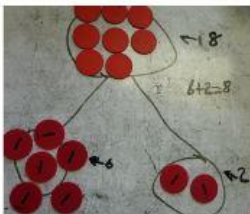
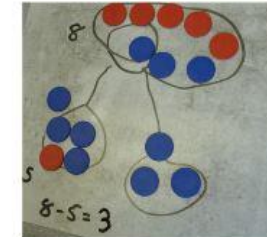
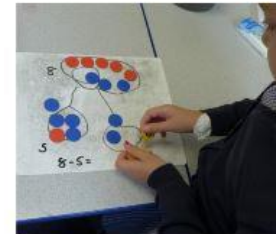
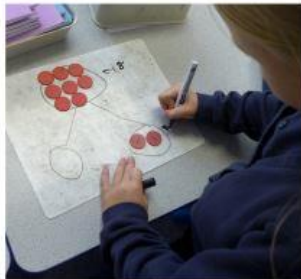
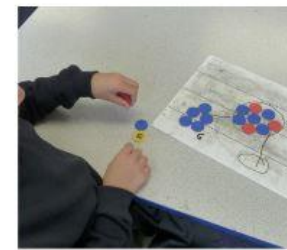
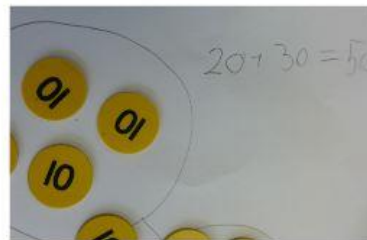
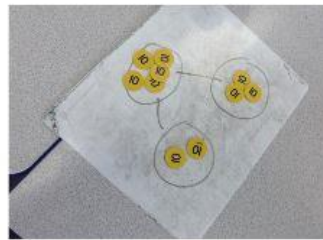
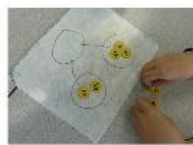
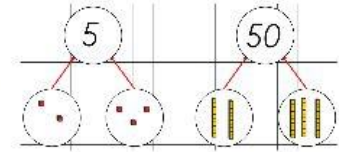
IND T TA SCAP

Birley Primary Academy  
A LEAD Academy

Teacher Self Peer



If the whole is . . . . and one part is . . . . , then the other part is . . . .



# What does work look like in Y3?

**ney**

## MATHS

**SLAM!**

Topic: Representing numbers to 1000

How can we represent 124?

Concrete      Pictorial      Abstract

1 24

Can we make any connections?

How had Britain changed from the beginning of the Stone Age to the end of the Iron Age?

What was Iron Age Britain like?

How does this link to our future learning?

Are any of these not 24?

Bar Model

|       |                 |
|-------|-----------------|
| 124   | $120 + 4 = 124$ |
| 120 4 |                 |

Part Whole Model

|      |                   |
|------|-------------------|
| 124  | $12 + 12 = 24$    |
| 20 4 | $4 \times 6 = 24$ |
| 3 8  | $3 \times 8 = 24$ |

Place Value Chart

|   |   |   |           |
|---|---|---|-----------|
| H | T | O |           |
| 1 | 2 | 4 | <u>24</u> |

Part Whole Diagram

$100 - 24 = 76$

$10 \times 2 = 20$

$10 \times 2 = 20$

$4 \times 6 = 24$

Three Times Table

|    |   |   |    |
|----|---|---|----|
| 2  | 3 | = | 6  |
| 3  | 3 | = | 9  |
| 4  | 3 | = | 12 |
| 5  | 3 | = | 15 |
| 6  | 3 | = | 18 |
| 7  | 3 | = | 21 |
| 8  | 3 | = | 24 |
| 9  | 3 | = | 27 |
| 10 | 3 | = | 30 |
| 11 | 3 | = | 33 |
| 12 | 3 | = | 36 |

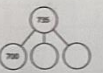
Six Times Table


|   |   |   |    |
|---|---|---|----|
| 6 | = | 6 |    |
| 2 | 6 | = | 12 |
| 3 | 6 | = | 18 |
| 4 | 6 | = | 24 |
| 5 | 6 | = | 30 |
| 6 | 6 | = | 36 |

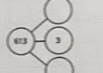
Monday - Tuesday  
 mardi - Tuesday  
 mercredi - Wednesday  
 jeudi - Thursday  
 vendredi - Friday  
 samedi - Saturday  
 dimanche - Sunday

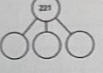
# What does work look like in Y4?

2. Complete the part-whole models and the number sentences.

a)   $735 = \square + \square + \square$

b)   $491 = \square + \square + \square$

c)   $613 = \square + \square + \square$

d)   $321 = \square + \square + \square$

3. Complete the number sentences.

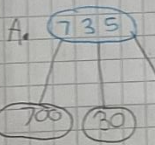
a)  $328 = \square + \square + \square$

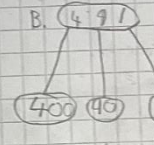
b)  $249 = \square + \square + \square$

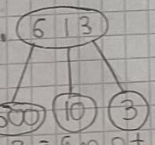
c)  $320 = \square + \square$

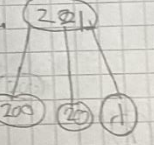
d)  $804 = \square + \square$

**Handwritten work:**

A.   $735 = 700 + 30 + 5$

B.   $491 = 400 + 90 + 1$

C.   $513 = 500 + 10 + 3$

D.   $221 = 200 + 20 + 1$

A.  $328 = 300 + 20 + 8$

B.  $249 = 200 + 40 + 9$

03.10.22

WALT: To round to the nearest 10, 100 and 1000s.

Steps for Success:

- I can round 2, 3 & 4 digit numbers to the nearest 10, 100 and 1000
- I can round using different representations
- I can solve problems using rounding

IND T TA SCAF

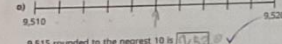
Stix Primary Academy

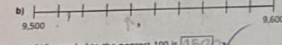
Teacher Peer

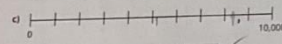
| Number                       | 7,126 | 4,996 | 2,006 | 499 |
|------------------------------|-------|-------|-------|-----|
| Rounded to the nearest 10    | 7,130 | 4,900 | 2,010 | 500 |
| Rounded to the nearest 100   | 7,100 | 5,000 | 2,000 | 500 |
| Rounded to the nearest 1,000 | 7,000 | 5,000 | 2,000 | 0   |

When I round to the nearest 10, I look in the one column. When I round to the nearest 100, I look in the tens column. When I round to the nearest 1,000, I look in the hundreds column.

1. Draw an arrow to show 9,515 on each number line. Complete the sentences.

a)   $9,515$  rounded to the nearest 10 is  $9,520$

b)   $9,515$  rounded to the nearest 100 is  $9,500$

c)   $9,515$  rounded to the nearest 1,000 is  $10,000$

2. Complete the sentences.

a) 452 rounded to the nearest 100 is  $500$

b) 2,452 rounded to the nearest 100 is  $2,500$

c) 4,609 rounded to the nearest 10 is  $4,610$

d) 6,058 rounded to the nearest 1,000 is  $6,000$

e) 9,918 rounded to the nearest 10 is  $9,920$

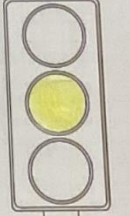
f) 7,511 rounded to the nearest 1,000 is  $8,000$

Rounding Reflection

How confident do you feel about rounding to the nearest 10, 100 and 1000?

Look back through your maths books and colour the traffic light to show

Red = Not confident  
Yellow = Okay  
Green = Very confident



# What does work look like in Y4?

02.10.23

WALT: To round to the nearest 1000.

Steps to Success:

- I can 4 digit numbers to the nearest 1000
- I can use number lines when rounding
- I understand when rounding to the nearest 1000 I need to look in the hundreds column.

IND T TA SCAF

Birley Primary Academy  
A U.K.A.S. Academy

Teacher Self Peer

1. a) Use the number line to round 5,300 to the nearest 1,000.

2,000 2,700

5,000 5,300 5,500 6,000

5,300 rounded to the nearest 1,000 is 5,000

b) Use the number line to round 7,450 to the nearest 1,000.

7,000 7,450 7,500 8,000

7,450 rounded to the nearest 1,000 is 7,000

2. Circle the numbers that round to 4,000 to the nearest 1,000.

3,000 3,300 4,000 4,230 4,800

3. Dora makes a number using place value counters.

| Thousands | Hundreds    | Tens           | Ones  |
|-----------|-------------|----------------|-------|
| 1000      | 100 100 100 | 10 10 10 10 10 | 1 1 1 |

a) Round Dora's number to the nearest 1,000  
 b) Round Dora's number to the nearest 100  
 c) Round Dora's number to the nearest 10

4. Round each number to the nearest 1,000.

a) 3,500 4,000 f) 2,560 3,000  
 b) 749 1,000 g) 2,660 3,000  
 c) 2,260 2,000 h) 1,795 2,000  
 d) 2,360 2,000 i) 4,591 5,000  
 e) 2,460 2,000 j) 5,925 6,000

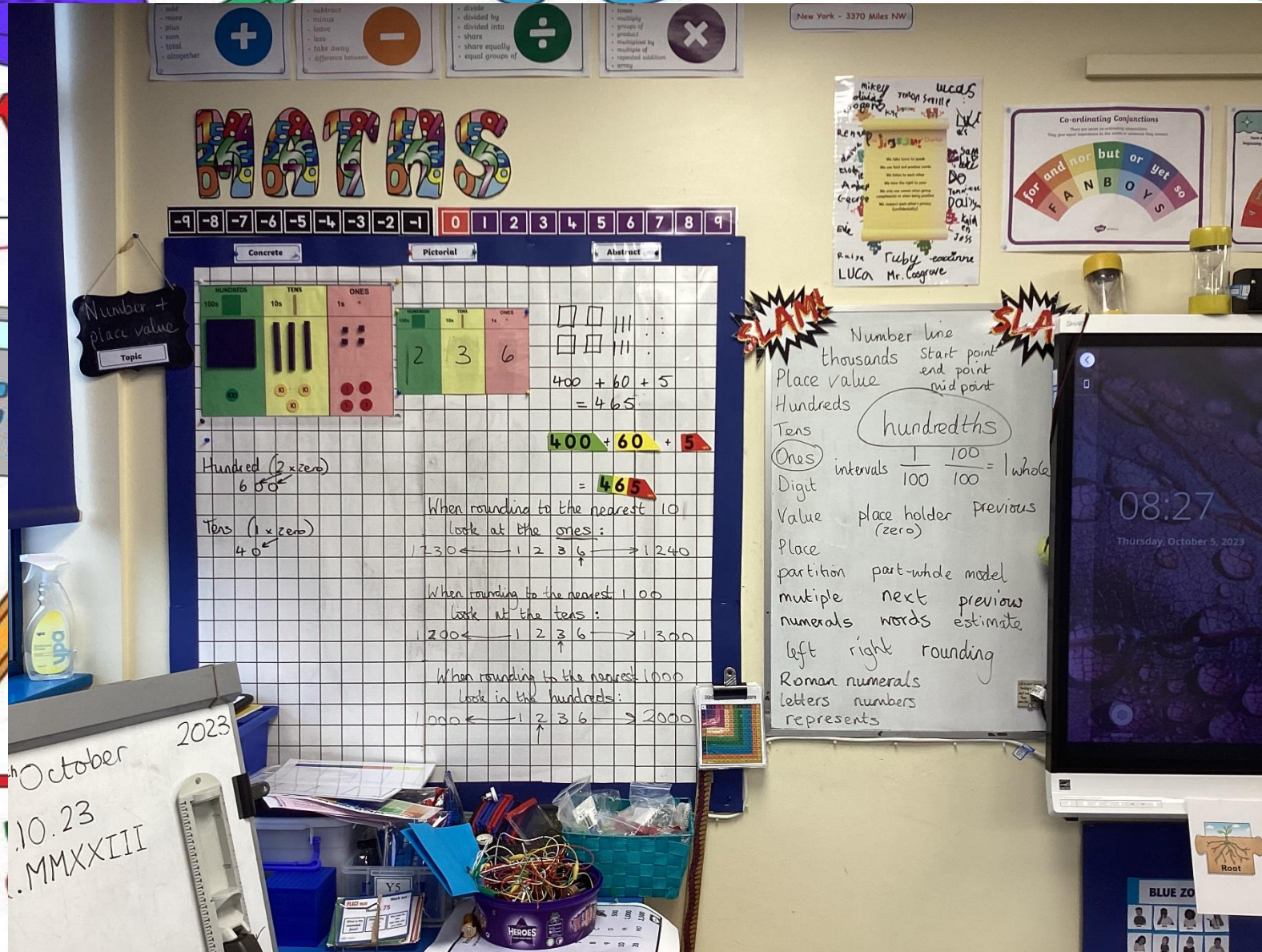
5. What could the missing digits be?

a) 3,8\_8 rounded to the nearest 100 is 3,900  
 b) 3,8\_8 rounded to the nearest 1,000 is 4,000  
 c) 3,8\_8 rounded to the nearest 10 is 3,890

Nearest 1000

nearest 1000  
 $1000 \leftarrow 1583 \rightarrow 2000$   
 nearest 100  
 $1500 \leftarrow 1583 \rightarrow 1600$   
 nearest 10  
 $1580 \leftarrow 1583 \rightarrow 1590$

# What does work look like in Y4?



# Calculation Policy

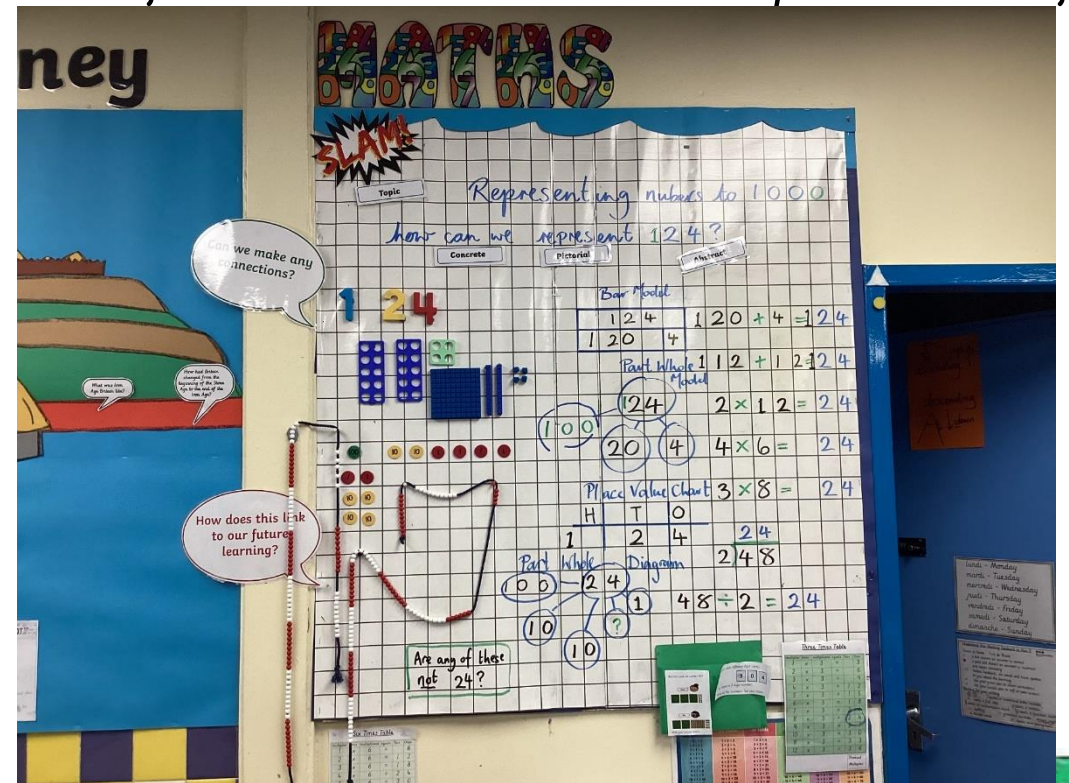
This document guides you through the appropriate calculation *methods* within each year group and the progression of *skills* throughout the school.

The content of this document is set out in year group blocks under the following headings: *addition, subtraction, multiplication and division.*

The calculation policy can be found on the school website.

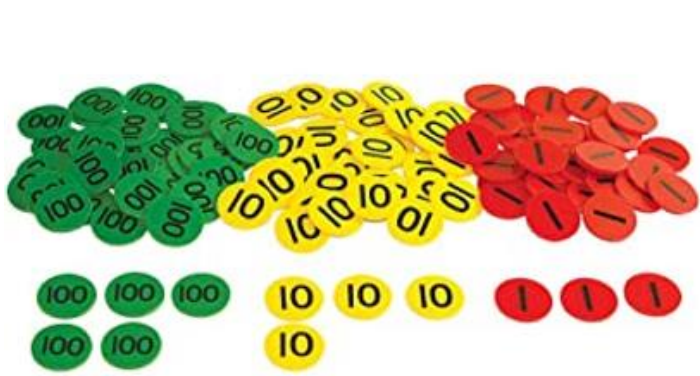
# Concrete, Pictorial, Abstract

The concrete, pictorial, abstract approach (or CPA method) is a process of using "concrete" equipment to represent numbers (including fractions) and operations, such as addition, subtraction, division and multiplication, followed by a pictorial representation to represent the equipment or derived structures (like bar and part-whole models), before moving on to the "abstract" digits and various other symbols used in mathematics.





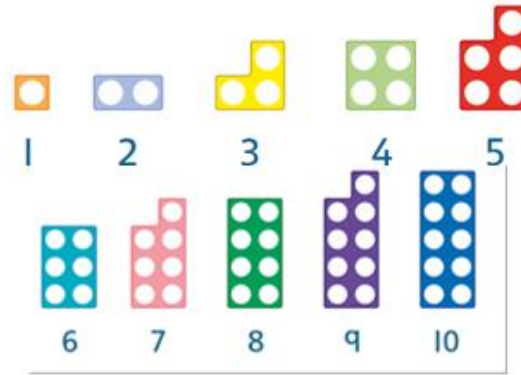
# Which concrete resources to we use in Y3/4?



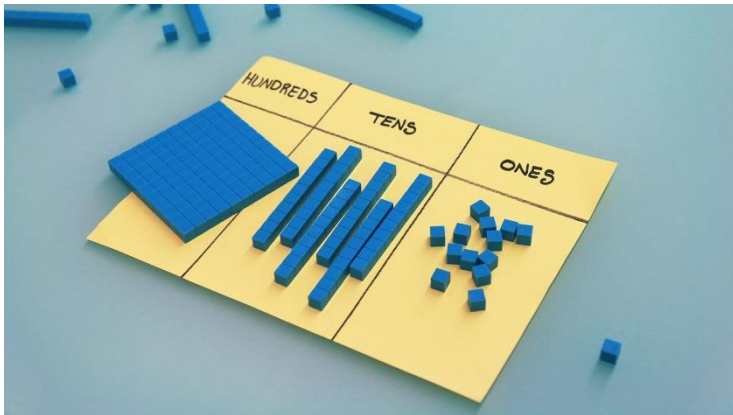
place value counters



dienes



numicon



# Speak Like a Mathematician



During maths lessons children are encouraged to “SLAM” which means to **Speak Like A Mathematician**. The main reason for this is to improve children’s ability to talk and write about maths, therefore developing their overall maths skills. There is also evidence which suggests that rich mathematical talk enables children to develop and use a wide range of mathematical vocabulary accurately, guides children towards a deeper understanding of mathematical structures, supports with understanding and remembering key facts, increases confidence and is beneficial for children who are new to learning English.



Calculate mentally:

$$18 \times 5$$

How did you do it?

# How can you support your child at home?

- Take away their fear and reassure and **praise** whenever possible
- Refer to the calculation policy (this can be found on the website) if you are unsure of the **calculation method** your child will use in school
- Use maths in **everyday routines and life** at home and involve children in this process e.g. portioning meals, cutting vegetables into halves, quarters, telling the time and managing money etc.
- Encourage **games** that use shapes and numbers

# Websites to Support Children's Maths Learning at Home:

Maths Zone - <https://mathszone.co.uk/>

BBC Bitesize - <https://www.bbc.co.uk/bitesize/subjects/z826n39>

I See Maths - <https://www.iseemaths.com/games-resources/>

Hit the Button - <https://www.topmarks.co.uk/maths-games/hit-the-button>

Purple Mash - <https://www.purplemash.co.uk/>




# Times Table Rockstars (TTRS)



When it comes to times tables, speed AND accuracy are important — the more facts your child remembers, the easier it is for them to do harder calculations. Times Table Rock Stars is a fun and challenging programme designed to help students master the times tables.

Every child in KS2 has a TTRS account. There are a number of different games children can play on the website.



*Thank you for taking the time to attend the workshop today. If you have any questions, please feel free to stay and ask a member of staff.*