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?

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

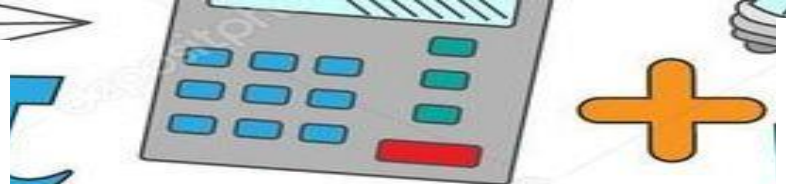
What are the National Curriculum Programmes of Study?

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

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.

YEAR 3

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 differentrepresentations
- 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.

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.

Multiplication and Division

- I can recall multiplication and division facts for multiplication tables up to 12 × 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.

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.

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

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.

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.

YEAR 4

Maths Objectives

Coverage Throughout the Year

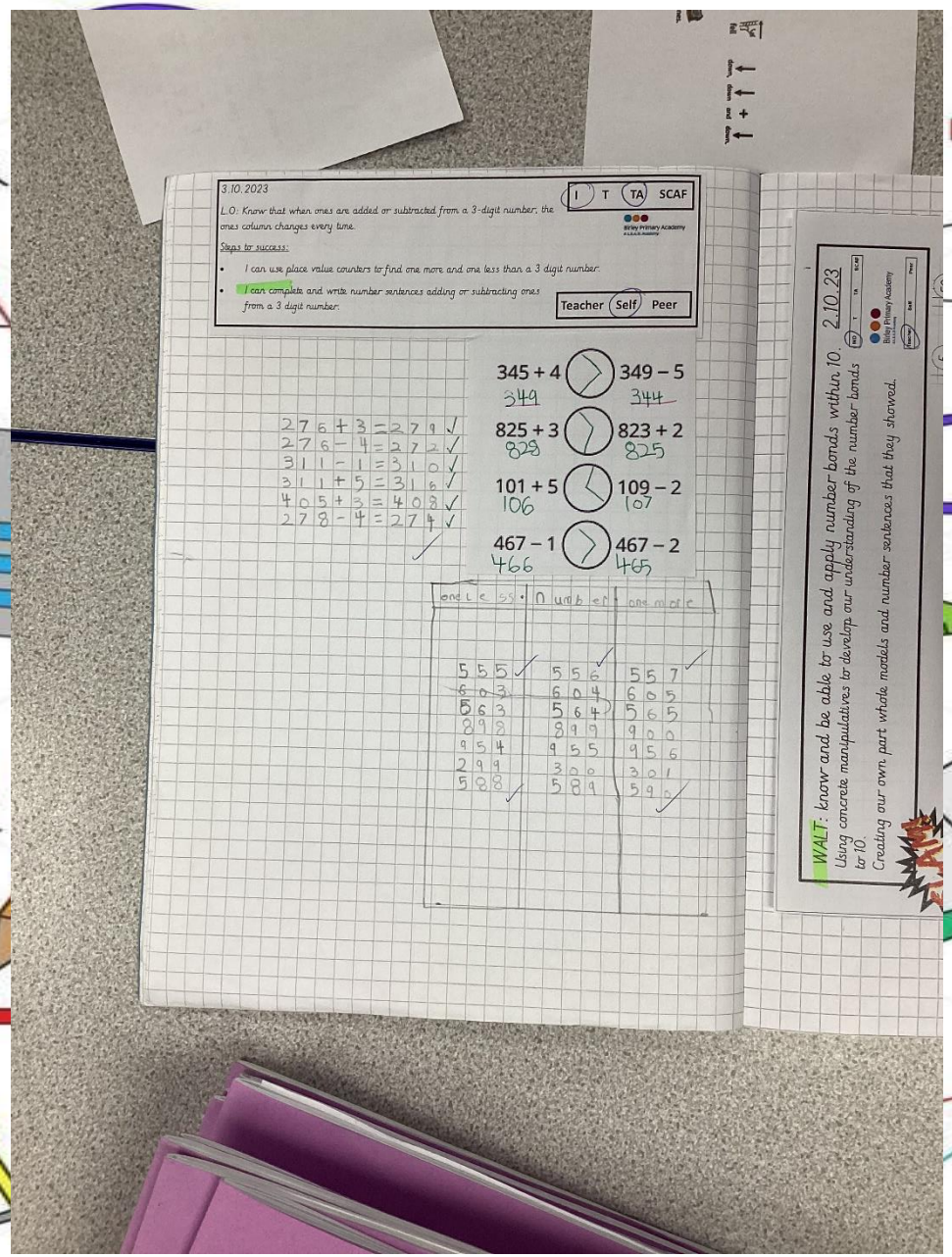
Maths lessons are carefully planned throughout the year to ensure full coverage of the National Curriculum Programmes of Study. Please see the overview below for Y3 and Y4.

Y3

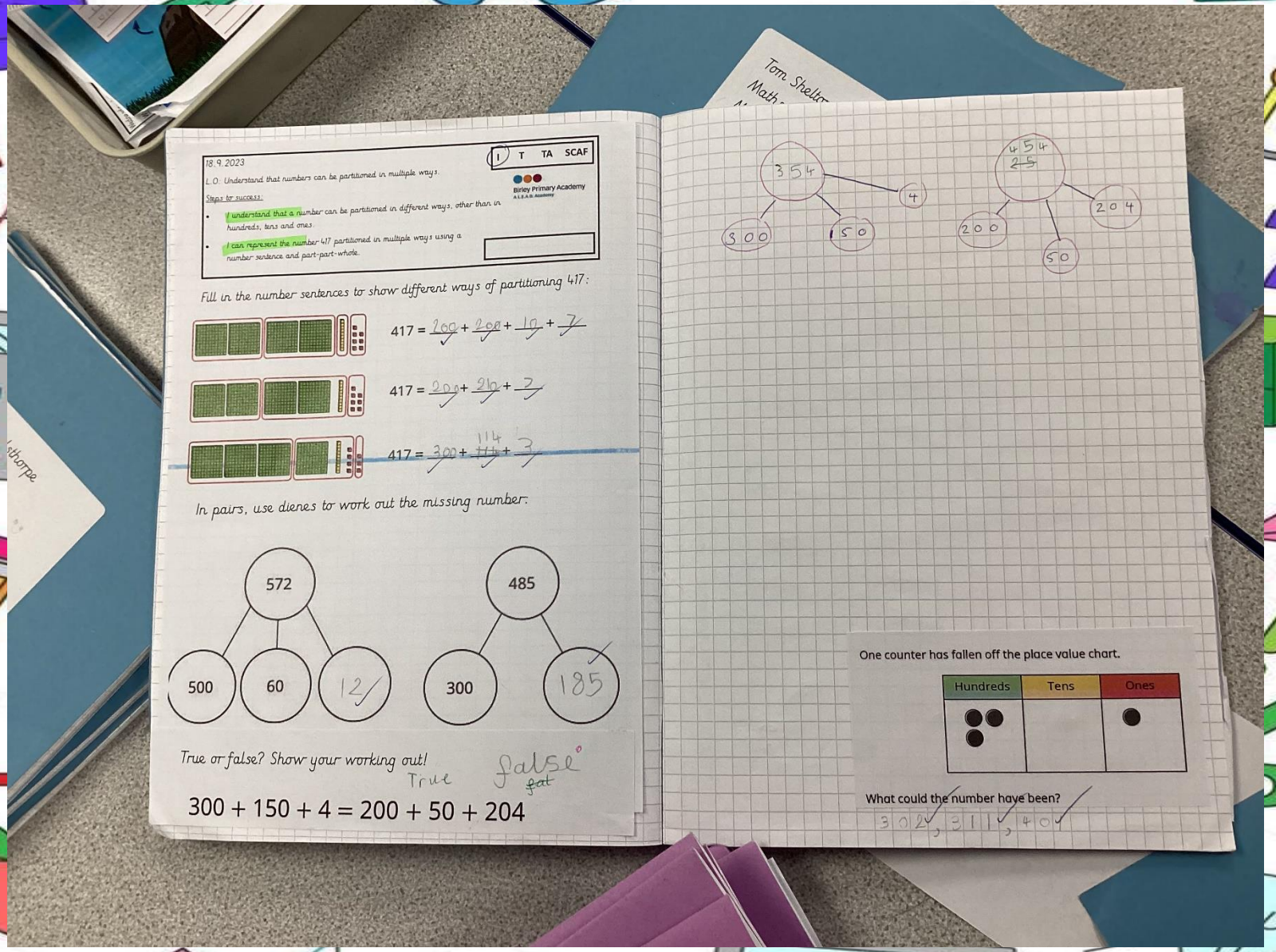
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Number: Place Value			Number: Addition and Subtraction			
Autumn 2	Number: Addition and Subtraction	Number: Multiplication and Division				Consolidation	
Spring 1	Number: Multiplication and Division			Measurement: Length and Perimeter			
Spring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

	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: 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?



What does work look like in Y3?



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.

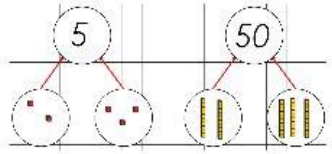
IND T TA SCAF

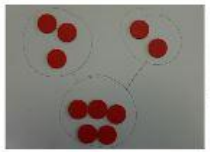
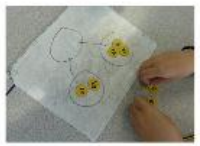
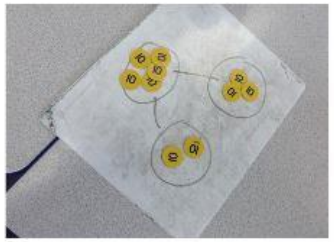
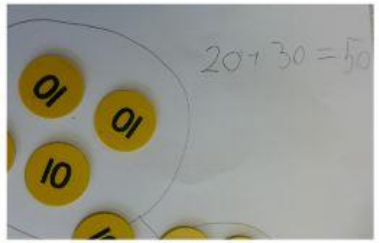
Birley Primary Academy

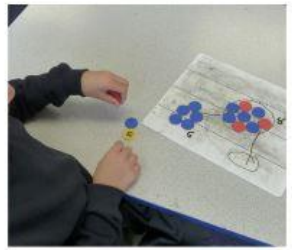
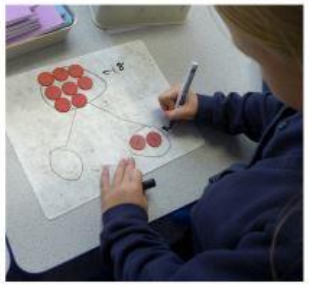
Teacher Self Peer

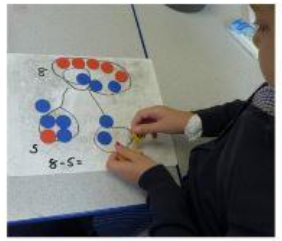
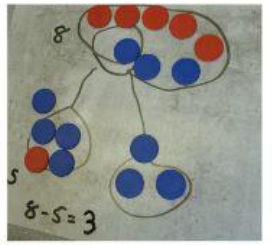
SLAM!

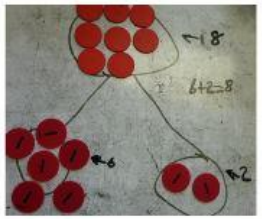
If the whole is . . . . and one part is . . . . , then the other part is . . . .

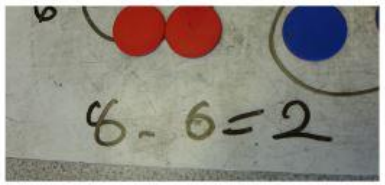


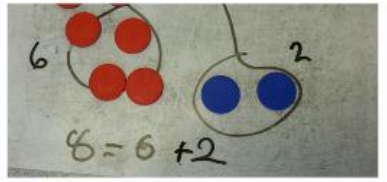





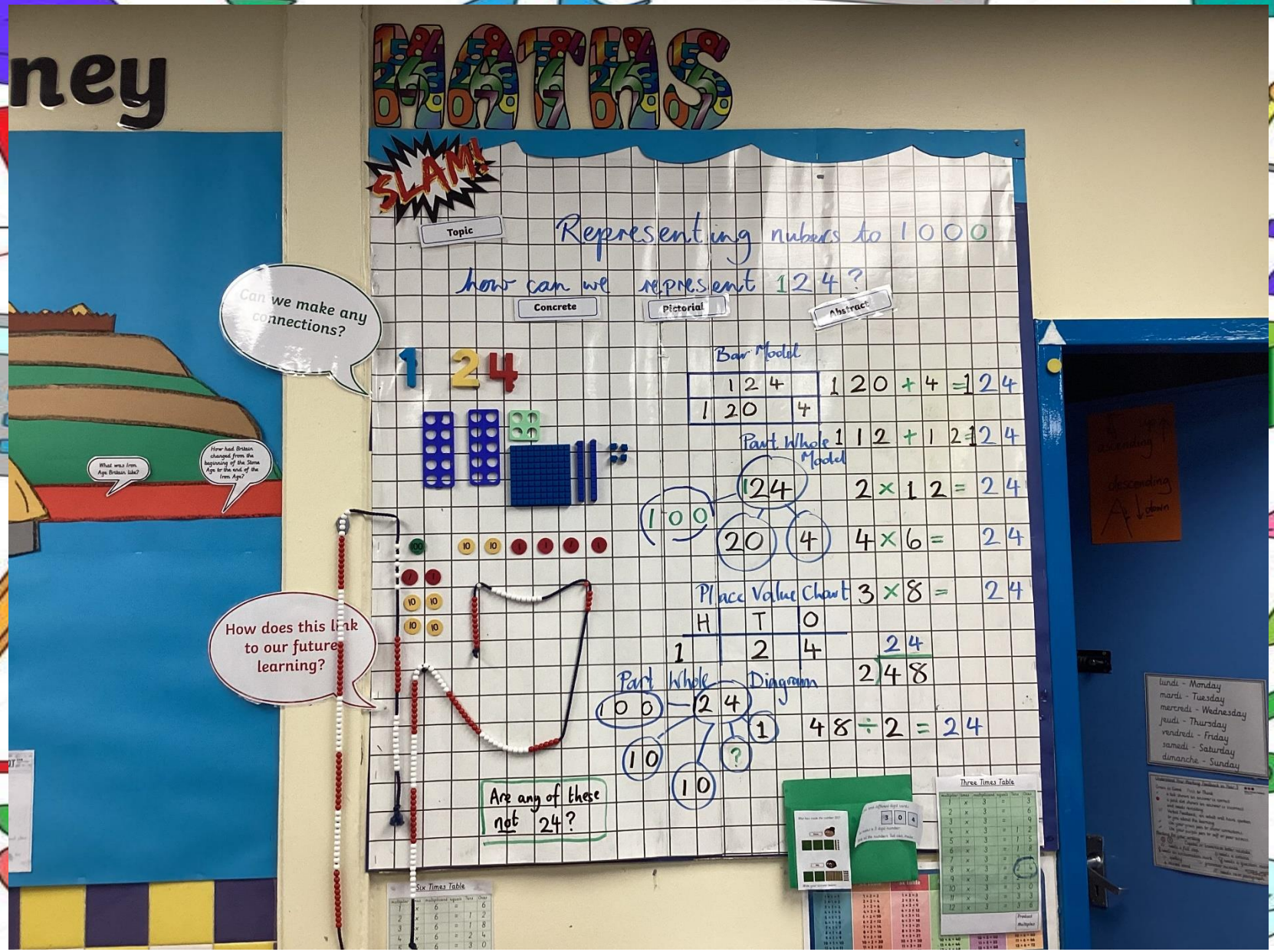






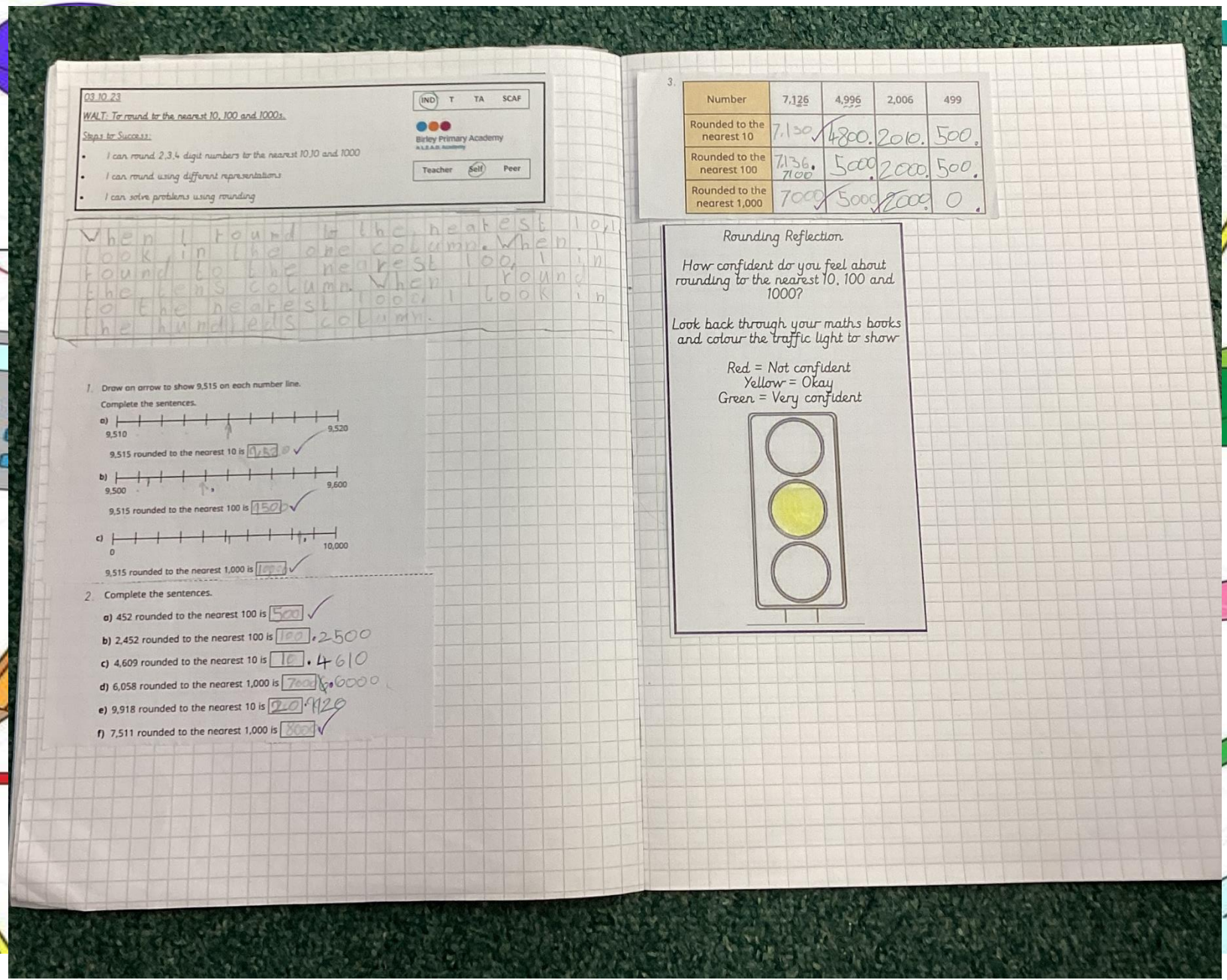





What does work look like in Y3?



What does work look like in Y4?



03.10.23

IND T TA SCAF

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

Steps to Success:

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

Birley Primary Academy

Teacher Self Peer

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 1000, I look in the hundreds column.

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

Complete the sentences.

a) 9,510 — 9,520

9,515 rounded to the nearest 10 is 9,520 ✓

b) 9,500 — 9,600

9,515 rounded to the nearest 100 is 9,500 ✓

c) 0 — 10,000

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 2500

c) 4,609 rounded to the nearest 10 is 4610

d) 6,058 rounded to the nearest 1,000 is 6000

e) 9,918 rounded to the nearest 10 is 9920

f) 7,511 rounded to the nearest 1,000 is 8000 ✓

3.

Number	7,126	4,996	2,006	499
Rounded to the nearest 10	7,130 ✓	4800	2010	500
Rounded to the nearest 100	7,136 7100	5000	2000	500
Rounded to the nearest 1,000	7000 ✓	5000 ✓	2000	0

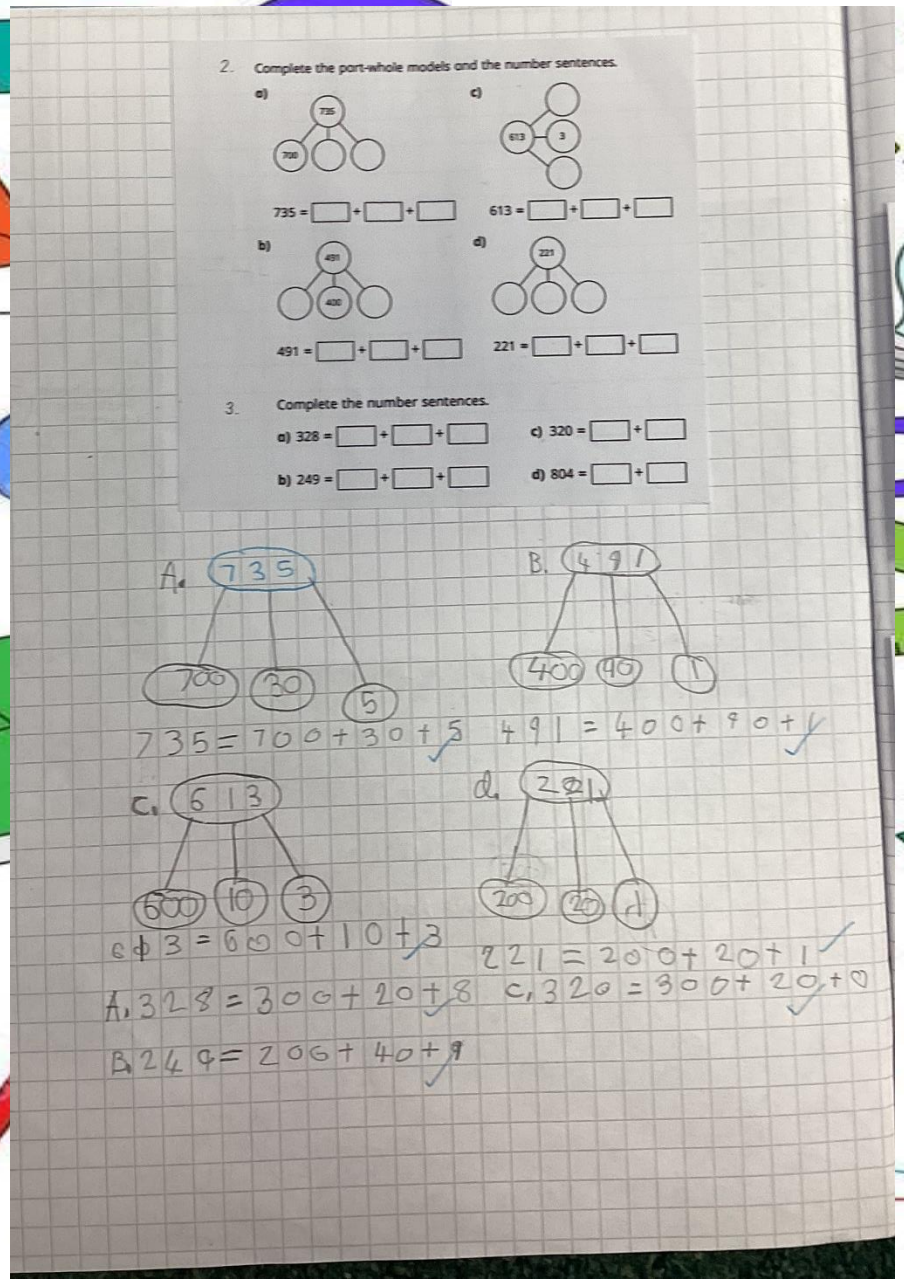
Rounding Reflection

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?



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

a) 735 = ☐ + ☐ + ☐

c) 613 = ☐ + ☐ + ☐

b) 491 = ☐ + ☐ + ☐

d) 221 = ☐ + ☐ + ☐

3. Complete the number sentences.

a) 328 = ☐ + ☐ + ☐

b) 249 = ☐ + ☐ + ☐

c) 320 = ☐ + ☐

d) 804 = ☐ + ☐

A. 735 = 700 + 30 + 5

B. 491 = 400 + 90 + 1

C. 613 = 600 + 10 + 3

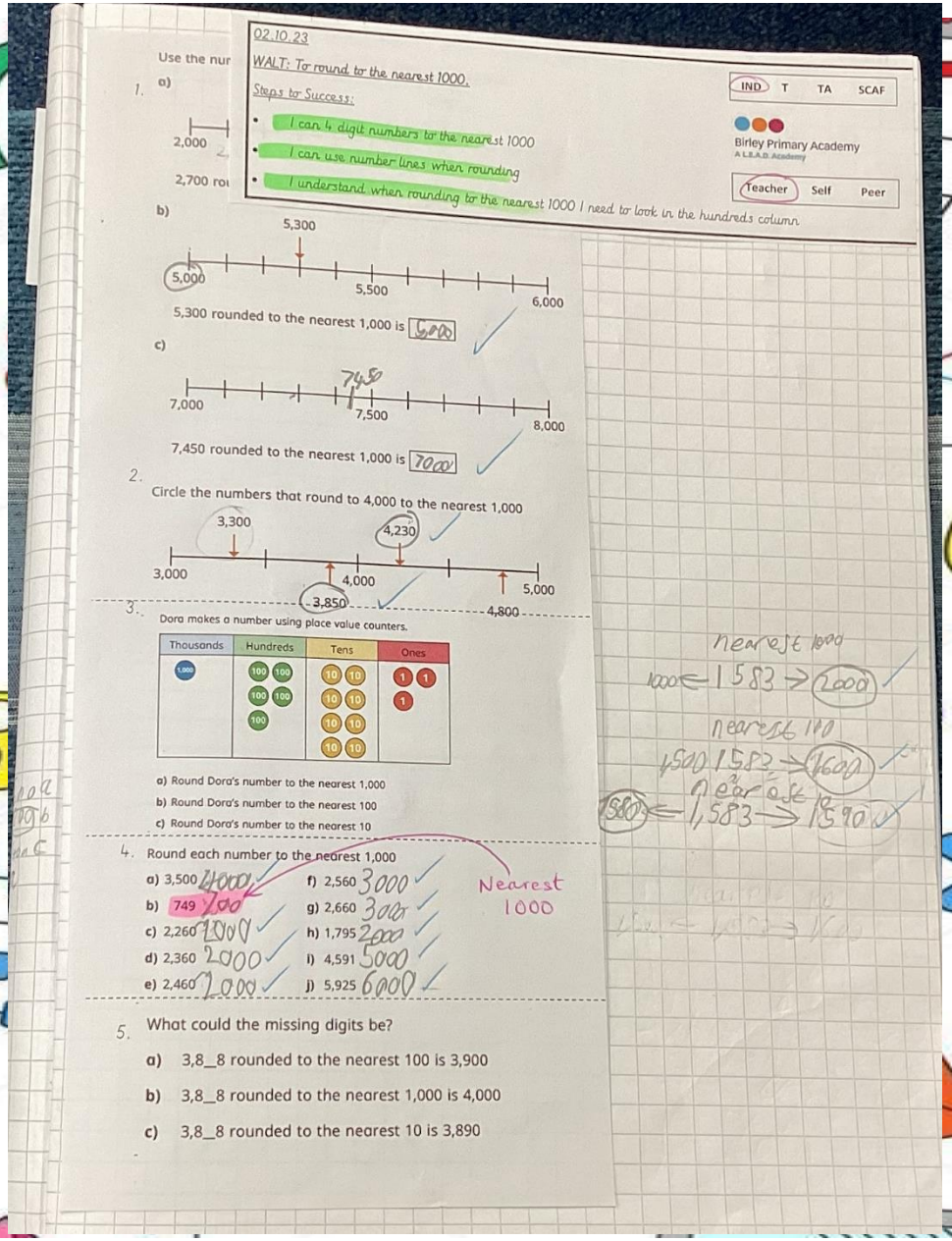
D. 221 = 200 + 20 + 1

A. 328 = 300 + 20 + 8

B. 249 = 200 + 40 + 9

C. 320 = 300 + 20 + 0

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

Teacher Self Peer

Use the nur

1. a)

2,000

2,700 rou

b)

5,300

5,000 5,500 6,000

5,300 rounded to the nearest 1,000 is 6,000

c)

7,000 7,500 8,000

7,450 rounded to the nearest 1,000 is 7000

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

3,300 4,230 3,000 4,000 5,000 3,850 4,800

3. Dora makes a number using place value counters.

Thousands	Hundreds	Tens	Ones
1,000	100 100 100 100 100	10 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 4000
b) 749 700
c) 2,260 2000
d) 2,360 2000
e) 2,460 2000
f) 2,560 3000
g) 2,660 3000
h) 1,795 2000
i) 4,591 5000
j) 5,925 6000

Nearest 1000

5. What could the missing digits be?

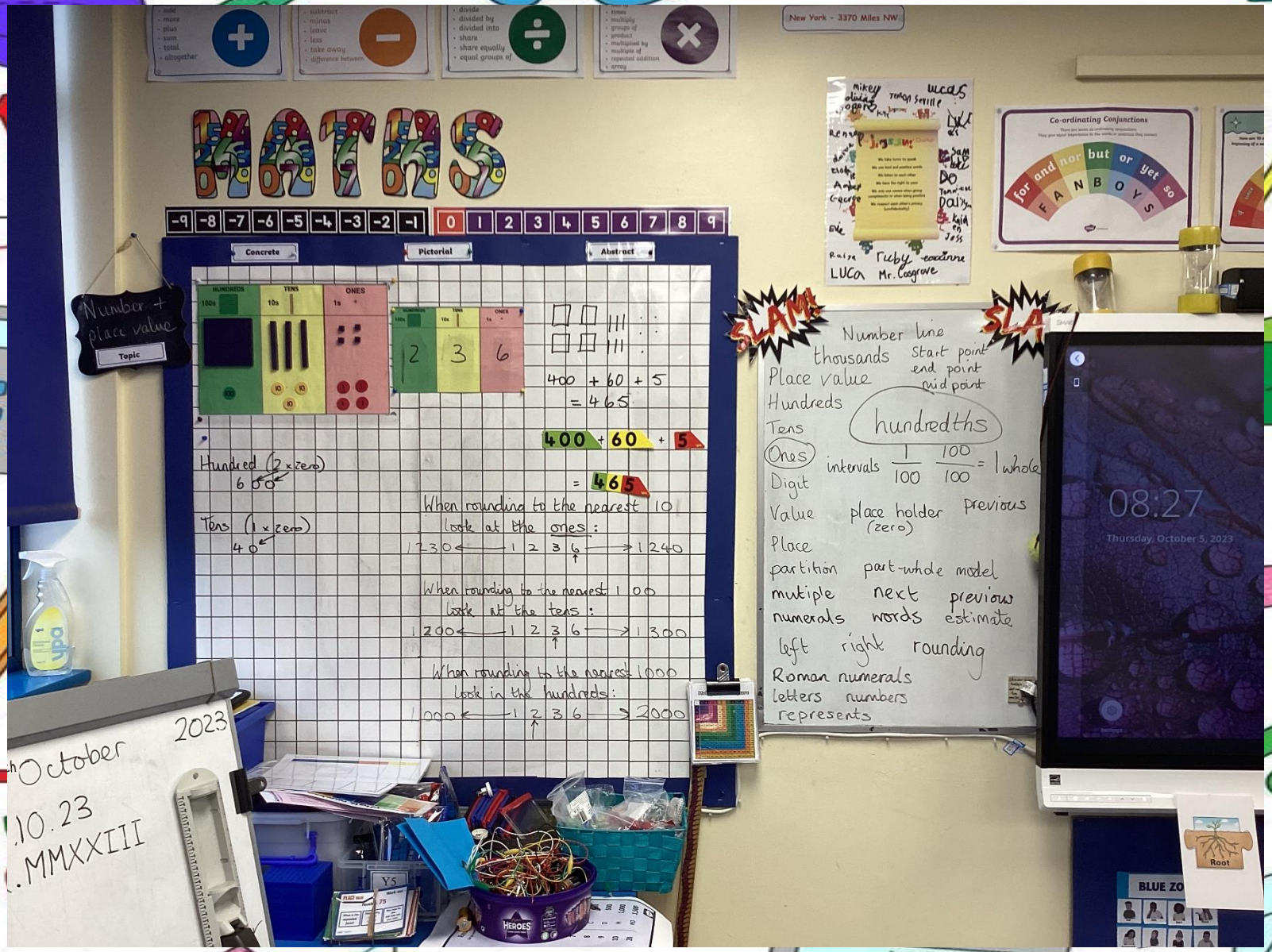
a) 3,8_8 rounded to the nearest 100 is 3,900

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
1000 ← 1583 → 2000
nearest 100
1500 1583 → 1600
nearest 10
1580 ← 1,583 → 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.

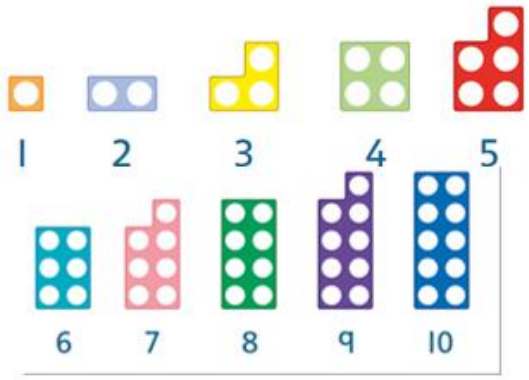
Concrete, Pictorial, Abstract

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.

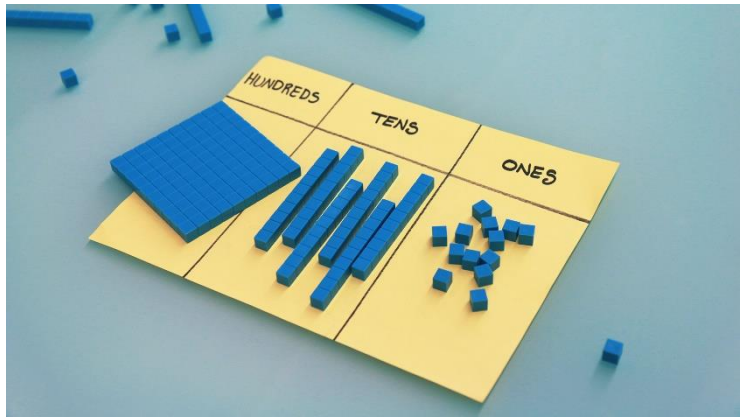
Which concrete resources to we use in Y3/4?

place value counters

dienes



numicon

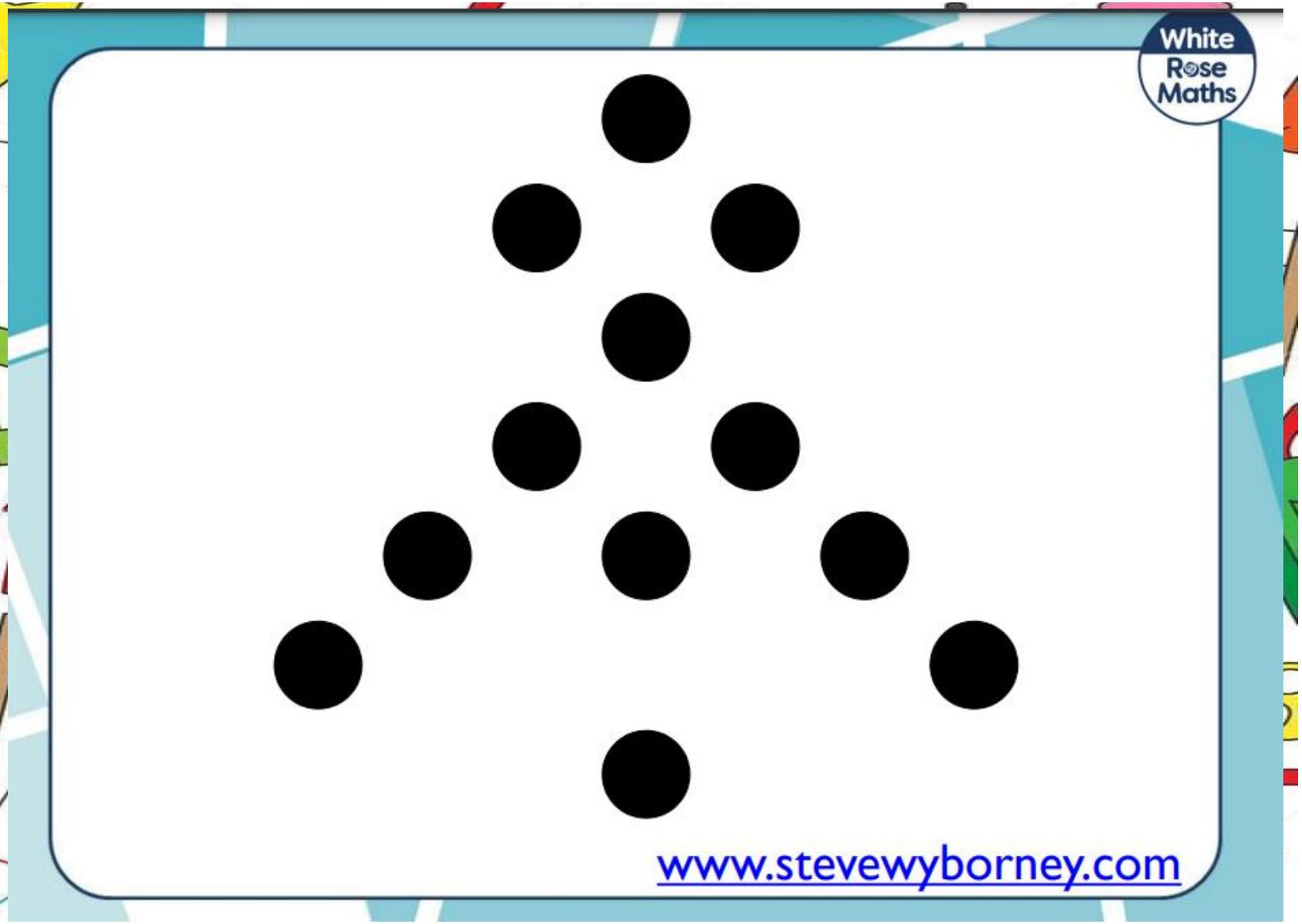


Speak Like a Mathematician

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.

Activities which may support rich mathematical talk...

Working with the person next to you can you write a number sentence to go with the dotted formation?



Calculate mentally:

18×5

How did you do it?

Calculate mentally:

197×5

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 at home and involve children in this process e.g. portioning meals, cutting vegetables into halves, quarters etc.
- Encourage games that use shapes and numbers
- Recognise the importance of maths in everyday life e.g. telling the time and managing money

Ideas for everyday maths opportunities...

When watching T.V – look at the guide and work out the length of time until the next programme

Look at food packaging and recognise different 2D/3D shape properties

Practise telling the time in different formats – can they tell the time in digital and analogue?

Playing games together – bingo, monopoly, snakes and ladders, card games, connect four, battle ships

Pattern spotting- look at door numbers whilst walking to school. Are these odd or even? Is there a pattern?

Cooking/baking – weighing out ingredients, portioning, calculating cooking time

Shopping – can children work out total costs? Can they calculate the change needed? Can they add the coins up if using cash?

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

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.

Times Table Rockstars (TTRS)

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.