Which is the odd one out?

23  20  15  25

Peter thinks that 20 is the odd one out. Is he right?
Sally thinks that 15 is the odd one out. Is she right?
Mathematics at Bathwick St. Mary Primary School

AIMS
• To inform you about the Maths national curriculum in kS2 classes
• To tell you about Maths learning and progression at School
• To show you ideas for helping at home with Maths
Years 1-6

Aims of the new curriculum for KS1 and KS2:
- To become fluent in the fundamentals of mathematics and to be able to recall and apply knowledge rapidly and accurately
- To reason mathematically
- To solve problems by applying knowledge

- There is an expectation that children will master specific targets by the end of each year.
What is covered at lower KS2? (Y3/4)

- Numbers - place value, addition, subtraction, multiplication and division
- Fractions and decimals
- Measurements
- Geometry - positions, directions and shapes
- Statistics
Targets to be met at the end of each year:

e.g. Year 3 -
• count in multiples of 4,8,50,100
• Compare and order numbers to 1000
• Add and subtract using formal columnar addition and subtraction methods
• Know 2x, 3x,4x,5x,8x,10 tables
• Count in tenths
• Add and subtract fractions with the same denominator
• Measure perimeter
• Know 12hr and 24hr clock
• Tell time to the minute.
• Identify parallel and perpendicular lines

Year 4-
• Count in multiples of 6,7,9,25, and 100
• Use negative numbers
• Know Roman numerals
• Add and subtract formally to 4 digits
• Know ALL x tables to 12x
• Use columnar multiplication
• Use equivalent fractions
• Use decimal equivalents
• Round decimals to 1.d.p.
• Find area
• Convert time from digital to analogue
What is covered at Upper KS2? (y5/6)

- Numbers - place value, addition, subtraction, multiplication and division
- Fractions, decimals and percentages
- Measurements
- Geometry - positions, directions and shapes
- Statistics
- Ratio and proportion
- Algebra
## Targets to be met at the end of each year:

**e.g. Year 5.**
- Read, write and order to 1 million
- Add and subtract large numbers
- Identify factor and multiples
- Know prime, cube and square numbers
- Use formal multiplication
- Use short division
- Recognise mixed numbers and improper fractions
- Use percentages
- Multiply fractions
- Know how to convert from metric to imperial measures

**Year 6**
- Read, write and order to 10 million
- Use long multiplication and long division
- Add and subtract fractions
- Divide fractions
- Multiply and divide decimals
- Use scaling to solve problems (ratio and proportion)
- Use algebraic formulae
- Calculate the area of parallelograms and triangles
- Use pie charts
- Calculate angles in a circle or line
The Daily Lesson from Years 1-6

- Mental starter
- Main Introduction and Group Activity
- Independent/Group Activity
- Plenary
Ways of Learning

- VISUAL
- AUDITORY
- KINESTHETIC
- MENTAL
- WRITTEN
- Paired/ group or individual
Written Calculations at Bathwick

Subtraction  addition
multiplication division

Essential to have number knowledge: bonds and times tables
Addition

1. Hands on addition
2. Pictorial addition
3. The empty number line
4. Partitioning
5. Expanded method in columns
6. Column method
The empty number line

$47 + 25 = \square$

My sunflower is 47cm tall.
It grows another 25cm.
How tall is it now?

or

\begin{align*}
\text{47} & \quad +20 & \quad 67 \\
& & \quad +5 & \quad 72 \\
\end{align*}
Partitioning

- $47 + 76 = 47 + 70 + 6 = 117 + 6 = 123$
- $47 + 76 = 40 + 70 + 7 + 6 = 110 + 13 = 123$

- $47 = 40 + 7$
- $+ 76 = 70 + 6$
- $110 + 13 = 123$
Expanded method in columns

\[ 487 + 546 = \square \]
There are 487 boys and 546 girls in a school. How many children are there altogether?

\[
\begin{align*}
500 + 40 + 6 \\
+ 400 + 80 + 7 \\
900 + 120 + 13 &= 1033
\end{align*}
\]
Column Method

12,786 + 2,568 = □

12,786 people visited the museum last year. The numbers increased by 2,568 this year. How many people altogether visited this year?

```
1 2 7 8 6
+ 2 5 6 8
-----
1 5 3 5 4
  1 1
```
Subtraction

1. Hands on subtraction
2. Pictorial subtraction
3. Using the empty number line
4. Counting up (Complimentary addition)
5. Partitioning
6. Column subtraction
The empty number line

84 - 27 = 57
I cut 27 cm off a ribbon measuring 84 cm. How much is left?

or

-3 -4 -20
57 60 64 84
Counting up - Complimentary addition

834 - 378 = □

The library owns 834 books. 378 are out on loan. How many are on the shelves?

\[\begin{align*}
378 + 22 & = 400 \\
400 + 400 & = 800 \\
800 + 34 & = 834 \\
\end{align*}\]

\[\begin{align*}
2 & 2 \\
4 & 0 & 0 \\
3 & 4 \\
\hline
4 & 5 & 6
\end{align*}\]
Partitioning

- Subtraction can be recorded using partitioning on a number line:

\[ 74 - 27 \]
\[ = 74 - 20 - 7 \]
\[ = 54 - 7 \]
\[ = 47 \]
Partitioning is not just about tens and units.

- Look at this sum

\[ 51 - 17 \]

What would you partition 51 into?
• 51 - 17 = 34
Column Method

• We use exchanging from the next column to complete the sums:

\[
\begin{array}{c}
744 \\
-27 \\
\hline
47
\end{array}
\quad
\begin{array}{c}
61311 \\
-367 \\
\hline
374
\end{array}
\]

What about 2000 - 179?
Multiplication

1. Hands on
2. Pictorial
3. Jottings with arrays
4. Number line
5. Mental multiplication using partitioning
6. Grid method
   • One digit by two digits
   • Two digits by two digits
   • Three digits by two digits
Arrays

3 x 5

5 x 3
Mental multiplication using partitioning

13 \times 7 = □

There are 13 biscuits in a packet. How many biscuits in 7 packets?

\[ +70 \quad +21 \]

\[ 10 \times 7 \quad 3 \times 7 \]
Grid method

- One digit by two digits
- Two digits by two digits
- Three digits by two digits

6 \times 124 = □

124 books were sold. Each book cost £6. How much money was taken?

\[
\begin{array}{ccc}
6 & | & 100 & 20 & 4 \\
\hline
6 & | & 600 & 120 & 24
\end{array}
\]

\[6 \times 124 = 744\]

72 \times 34 = □

A cat is 72 cm long. A tiger is 34 times longer. How long is the tiger?

\[
\begin{array}{ccc}
30 & | & 2100 & 60 \\
\hline
4 & | & 280 & 8
\end{array}
\]

\[72 \times 34 = 2448\]
Column multiplication

237
× 4
948

56
× 27
1120
392
1512

56 × 20
56 × 7
Division

1. Sharing and grouping using objects
2. Jottings on pictures/number line
3. Empty number line
4. Mental division using partitioning
5. Expanded method for HTU (Chunking)
6. Short division
The empty number line

28 ÷ 7 = □

A chew bar costs 7p. How many can I buy with 28p?
Mental division using partitioning

\[ 84 \div 6 = \square \]

I need 6 drawing pins to put up a picture. How many pictures can I put up with 84 pins?
Short and long Division

\[
\begin{array}{c}
27 \\
\hline
3 | 81 \\
\end{array}
\]

\[
\begin{array}{c}
23 \\
\hline
24 | 560 \\
-480 \\
\hline
80 \\
-72 \\
\hline
8 \\
\end{array}
\]

Answer: 23 R 8
We want children to ask themselves:

- Can I do this in my head?
- Can I do this in my head using drawings or jottings?
- Do I need to use an expanded/compact written method?
- (Do I need a calculator?)- No longer used in KS2 tests but still taught in y5/6.
KS2

- 1 arithmetic paper on number only (30 minutes)

- 2 tests for mathematical fluency, solving problems and reasoning. (40 minutes each)

- Levels are no longer given.

- A SATS meeting for parents will be held nearer the time.
How you can help at home.

• Crucial that children practice times tables and number bonds.

• Look for number in everyday activities.

Make Maths fun to do... Play games: snakes and ladders, darts, dominoes and other games that depend on numbers, counting, calculation and scoring. 'Battleships' is a fun way to use co-ordinates.

Cooking is great for helping your child get to know simple weights and measures. An old-fashioned set of balance scales is ideal. This is a good way to introduce the idea of ratios and proportions, too. Measure in both grammes and ounces.
How you can help at home...

- **POCKET MONEY.** Help her to add it up week by week, and work out whether they can afford a particular toy or treat. Shop using money and calculate change.

**TIME.** Look at clocks, both digital and analogue. Estimate how long a certain activity will take to do and see if you are right! Work out how long it is until the next mealtime. Play games: how long is a minute, starting from now?

- **HOBBIES.** If your child is car-mad, talk about relative engine sizes, fuel economy, speed and performance. Watch and play sports that involve scoring, timing, counting, measuring.

**CALENDARS AND DATES.** Give your child a calendar to record special occasions. Count the days in each month. Learn the poem 30days hath September etc.
A positive Attitude from Parents.

• Good role models.
• Don’t say ‘I am no good at Maths’ or ‘I wasn’t any good at maths at school’ or ‘Ask your Dad as he is better than me’ – this is especially important for girls.

• It is ok to make mistakes.
Parent Booklets

• There is a parent booklet available for each year group with some targets, questions and activities that you can refer to.

• Include calculation progressions for addition, multiplication, subtraction and division.