Mathematics Curriculum Story 2023/24

Vision

Our vision is for all of our pupils to have a resilient and positive attitude towards mathematics and an understanding of the importance of this learning in real world contexts. We want our pupils to have confidence in mathematical knowledge, concepts and skills in order for them to be able to reason and solve problems logically and systematically. We wish for our pupils to leave primary school equipped with the knowledge and skills they need, to prepare them for their next step in education, and be enthusiastic about what they are yet to learn.

School's Ofsted Target: To ensure consistently high-quality opportunities for pupils in all year groups, especially the most able pupils, to apply their mathematical learning and improve their reasoning skills.

More Able Maths Data (End of Year)

Year 1: 7%
Year 2: 24%
Year 3: 35%
Year 4: 32%
Year 5: 28%
Year 6: Teacher Assessment – 52% SATs - 57%

Times Table Rock Stars rolled out across the school

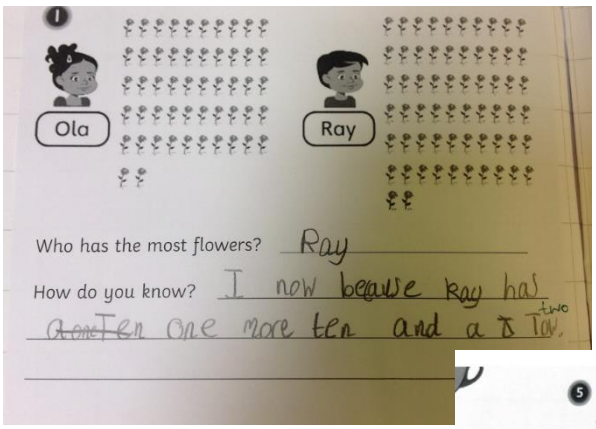
Subject lead met with maths department at Bishop Wand to work collaboratively on maths teaching across primary and secondary school. Subject lead observed Year 8 & 9 maths lessons.

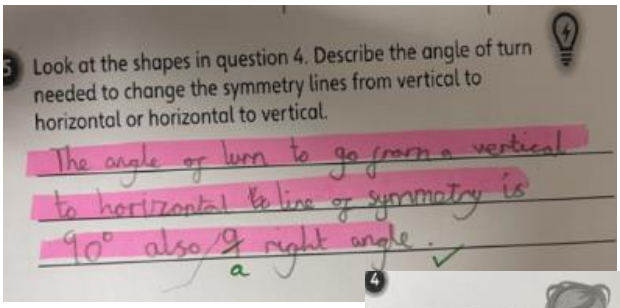
Year 6 completed a unit of work on money sense

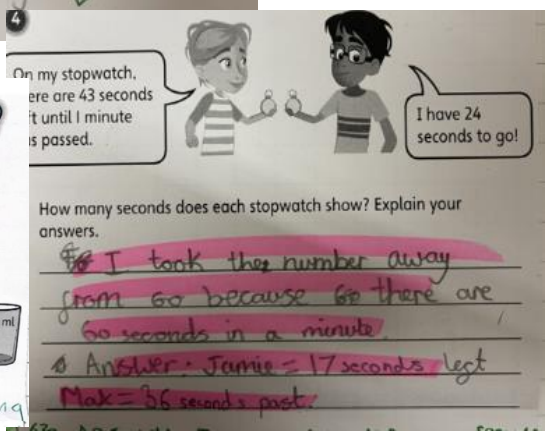
More Able Challenge

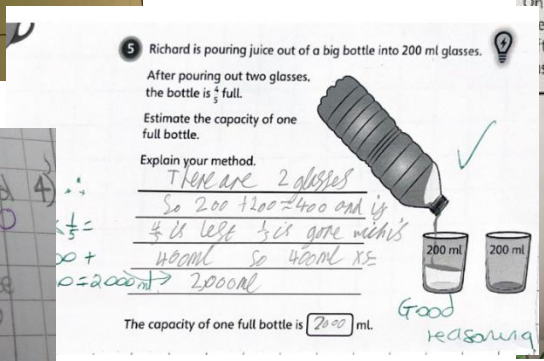
Year 5 pupils competed in a maths challenge day at The Guildhall resulting in 1st place out of 63 teams!

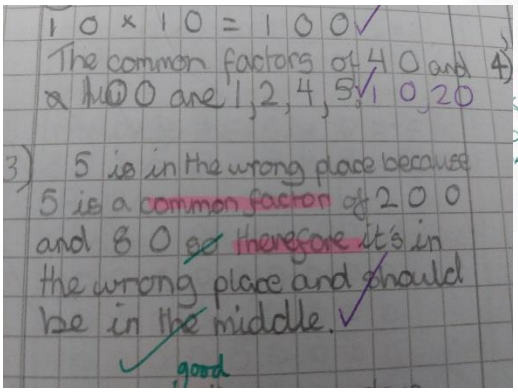
KS2 End of Year Assessments – 86% achieved the expected standard in maths. 57% achieved the greater depth standard.

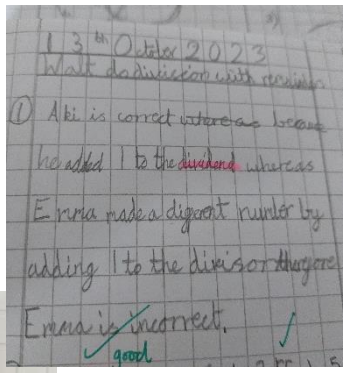


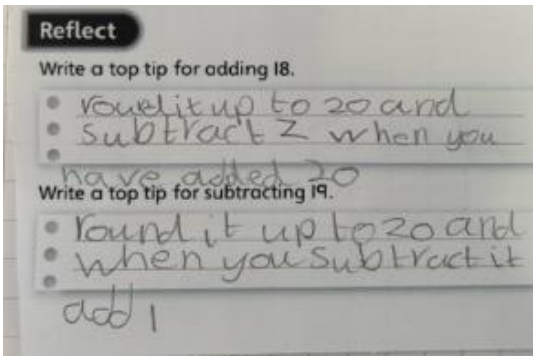




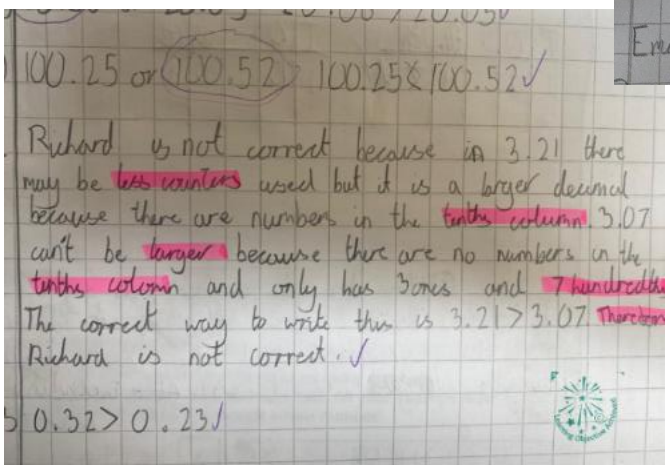


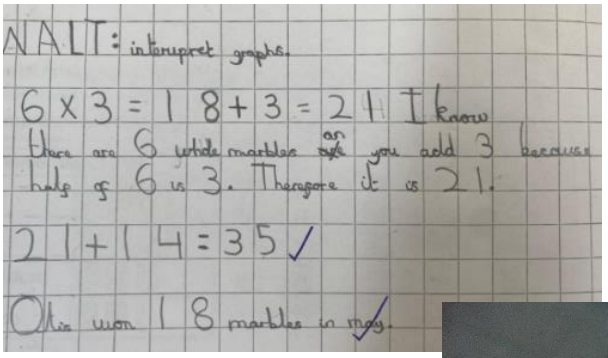






Reasoning across St. Mary's Hampton School 2023 - 2024





Maths in the EYFS

How can we assess reasoning?

STEP 1
Describing- simply what they did.

STEP 2
Explaining- offers some reasons for what they did. May/may not be a correct explanation.

STEP 3
Convincing- more confident in explanation. Underlying mathematical argument may/may not be accurate yet but is more coherent than step 2.

STEP 4
Justifying- a correct logical argument and chain of reasoning. Words such as because, so, therefore may be used.

STEP 5
Proving- a watertight argument that is mathematically sound often based on generalisations and underlying structure.

Progression in reasoning staff training delivered. Class teachers created reasoning statements for each progression point.

Year 2

Jay says 20cm is less than 1m. Is he correct? How do you know?

Step 1: 20cm < 1m

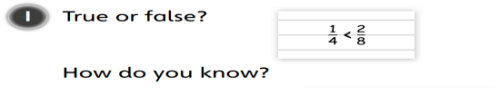
Step 2: 20cm is less than 100cm

Step 3: Jay is correct because 100cm is greater than 20cm or 1m = 100cm so Jay is correct as 20cm is less than 100cm

Step 4: Jay is correct because 1m is equal to 100cm and 20cm is less than 100cm

Step 5: To compare both measurements, it is easier if they are both the same unit of measurement. I know that 1m is equal to 100cm, so Jay is correct and 20cm < 100cm.

Year 3



Step 1: I know that ¼ is equal to 2/8 so it is false

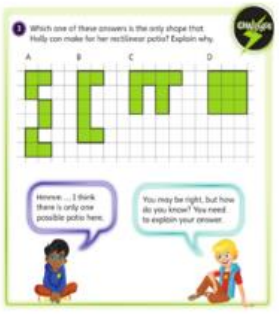
Step 2: I know that ¼ is equal to 2/8 because if I turn ¼ into 8ths, it is equal to 2/8 so it is false.

Step 3: I turned them into equivalent fractions by turning the ¼ into 8ths by multiplying both parts of the fraction by 2 to get 8ths. ¼ = 2/8

Step 4: My first step was to change the fractions to equivalent to see if the statement was true or false. Equivalent fractions have numerators and denominators that are different but they are equal to the same value. I change ¼ into 2/8 by multiplying the numerator and denominator by the same number. Therefore, ¼ is equivalent to 2/8 so this statement is false.

Step 5: My first step was to change the fractions to equivalent to see if the statement was true or false. Equivalent fractions have numerators and denominators that are different but they are equal to the same value. I therefore change ¼ into 2/8 by multiplying the numerator and denominator by the same number. ¼ is equivalent to 2/8 so this statement is false. I also proved that 2/8 can be divided by the same number (2) and therefore I changed 2/8 to ¼ so the statement 2/8 is greater than ¼ is false.

Year 4

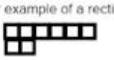


Step 1: I counted 8.

Step 2: C because there are 8 squares in the right shape.

Step 3: C because it has an area of 8 squares and they are in a rectilinear shape.

Step 4: C because it has an area of 8 squares which touch are the sides so it is a rectilinear shape. The others don't have 8 squares or touch at the sides.

Step 5: She cannot make A as squares in a rectilinear shape should touch at the sides and some of the squares in this shape are touching at the corner. It cannot be B or D because they do not have an area of 8 squares, even though they are rectilinear shapes. C has an area of 8 squares and the squares touch at the side. Therefore C is the only shape that Holly can use for her patio. Another example of a rectilinear shape with an area of 8 squares is 

Reception

Which box is the largest? How can you tell?

Step 1: It looks bigger.

Step 2: That one is big and that one is small (pointing to the object/picture)

Step 3: That one is the biggest and that one is the smallest (pointing to the object/ picture)

Step 4: It looks bigger because that side is longer than that one and that side is longer than that one (pointing to the sides of the objects when talking)

Step 5: This one is bigger because that side is longer than that one/ side and that one is shorter (pointing to each) and that one is longer and that one/side is shorter.

Year 1

How many different numbers can you find to complete the number sentence?

36 > ? > 29

Step 1: 32 could go in the box.

Step 2: 32 is in between 36 and 29. It could go in the box.

Step 3: On a number line, 32 is in between 36 and 29 so it could go in the box. I think there are some other numbers that could go in the box as well… 35, 34, 33, 31 and 30.

Step 4: 35, 34, 33, 32, 31 and 30 are all less than 36 and greater than 29, so there are 6 numbers that could complete the number sentence. They are all in between 36 and 29 because, if you look on a number line, the numbers go 29, 30, 31, 32, 33, 34, 35 and 36.

Step 5: The difference between 36 and 29 is 6, because 36 – 29 = 6 and 29 + 6 = 39. This means that there are 6 numbers that could go in the box. If I count up in ones from 29 to 36, the numbers I would say are 30, 31, 32, 33, 34 and 35. These are the six numbers that could go in the box. All of them are less than 36 and greater than 29.

Year 5

5/9 + ?/9 > 1

What do you know about the numerator of the second fraction? How do you know?

Step 1: When 5/9 + 5 (or larger)/9 it makes a number greater than 1.

Step 2: The numerator must be greater than 4 for the fraction to be top-heavy.

Step 3: I added numerators until the total exceeded nine, as 9/9 equals one.

Step 4: If 9/9 equals 1, we must create an improper fraction to achieve an answer greater than 1. The second numerator must exceed 4 to generate such a fraction – for instance, +5 = 10, which is greater than 9.

Step 5: 9/9 equals 1. Any numerator less than 4 in the second fraction yields an answer smaller than 1, rendering the statement incorrect. If the missing numerator were 4, the result would equal 1, as in 5/9 + 4/9 equals 9/9, which equals 1. Therefore, the statement is incorrect.

Thus, the numerator must exceed four. For instance, 5/9 + 5/9 equals 10/9, which equals 1 and 1/9.

Year 6

Explain how to convert 3/25 as a percentage.

Step 1: 3/25 = 12/100 = 12%

Step 2: I timesed it by 4 so it's 12/100 = 12%

Step 3: I multiplied the fraction by 4 because you need to do the same to the top and bottom and you get 12/100 which is 12%.

Step 4: I multiplied the numerator and denominator both by 4 as you need to do this to get an equivalent fraction with a denominator of 100. This equals 12/100. Therefore the answer is 12%.

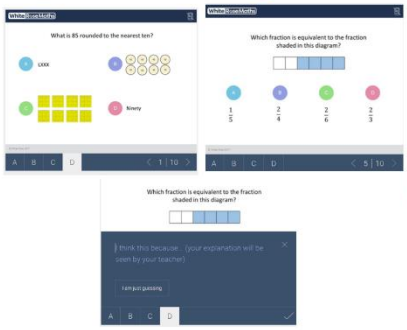
Step 5: In order to convert 3/25 into a percentage, it would be useful to find an equivalent fraction with a denominator of 100 as percent means 'out of 100'. 25 x 4 = 100 so I would need to multiply the numerator also by 4 (to find an equivalent fraction, you need to multiply or divide the numerator and denominator by the same number). 3/25 = 12/100. This fraction means 12 out of a hundred ∴12%.

Supporting your Child at Home

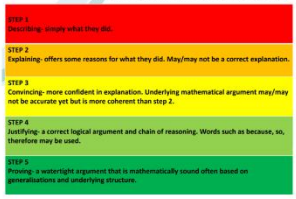
Real life contexts – use maths at any given opportunity!

- Counting up the stairs/counting fruit in a supermarket
- Matching pairs of socks
- Sorting and classifying toys at tidy-up time
- Comparing weights and measures when helping to put shopping away: "Oh this one feels heavy!"
- Measuring and weighing out ingredients
- Paying for and checking change in shops
- Prices in the supermarket – which deal is better?
- Correcting mathematical language e.g. confusion over yesterday/tomorrow etc.
- Time – encouraging your child to wear a watch
- Estimation of time – setting Alexa/phone timer for '10 minutes screen time'
- Subitising: "How many do you think there are?"
- Calculators at home to play with
- Pointing out 'real world' maths e.g. hairdresser using angles to cut hair

KS2 Home Learning



How can we assess reasoning?



Supporting your Child at Home

Perhaps most important of all – encourage a "growth mindset". Let your child know that they have unlimited maths potential and that being good at maths is all about working hard. When children have a growth mindset, they do well with challenges and do better in school overall.

When children have a fixed mindset and they encounter difficult work, they often conclude that they are not "a maths person". Telling children they are "smart" or "human calculators" when they do something well is encouraging a fixed mindset.

That seems like a nice thing to do, but it sets children up for difficulties later, as when they fail at something they will inevitably conclude that they aren't smart after all.

Instead use growth praise such as: "It is great that you have learned that." Or "I really like your thinking about that." When they tell you something is hard for them, or they have made a mistake, tell them: "That's wonderful; your brain is growing!"

Supporting your Child at Home

1

Be positive about maths. Try not to say things like "I can't do maths" or "I hated maths at school" – your child may start to think like that themselves.

2

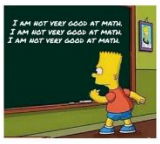
Point out the maths in everyday life. Include your child in activities involving numbers and measuring, such as shopping, cooking and travelling.

3

Praise your child for effort rather than for being "clever". This shows them that by working hard, they can always improve.

"I was never very good at maths at school."

"You must get your 'maths brain' from your mum/dad."



Autumn term mathematics workshop delivered to parents

"1. How useful and informative did you find the online maths workshop?"

Very useful and informative	4	(80.0%)
Useful and informative	1	(20.0%)
Somewhat useful and informative	0	(0.0%)
Neither useful or informative	0	(0.0%)

Question 2 has 4 answers (Open Text)

"2. What was the most useful or informative aspect?"

Unknown contact said:
"methodology"

Unknown contact said:
"specific examples and tips of how to do things & what to do/not do with our children"

Unknown contact said:
"Understanding the school's approach to mathematics teaching"

Unknown contact said:
"How maths is taught and tips to help at home"

Question 5 has 5 answers (Open Text)

"5. As a result of this workshop, is there anything different you will be doing to support your child with home learning or promoting maths skills in the real world? If so, please specify."

Unknown contact said:
"taking into account proposed tools"

Unknown contact said:
"Will look into the osmo game"

Unknown contact said:
"Using growth mindset language. Paying more attention to times tables as an absolutely fundamental building block. Using the CGP free parents resources (looking ahead to selective secondary schools)"

Unknown contact said:
"I have ordered one of the recommended games, it will be a Christmas

Unknown contact said:
"Buying a watch for Xmas.
[redacted] chats maths a lot as its his favourite subject but keep encouraging him with more knowledge "