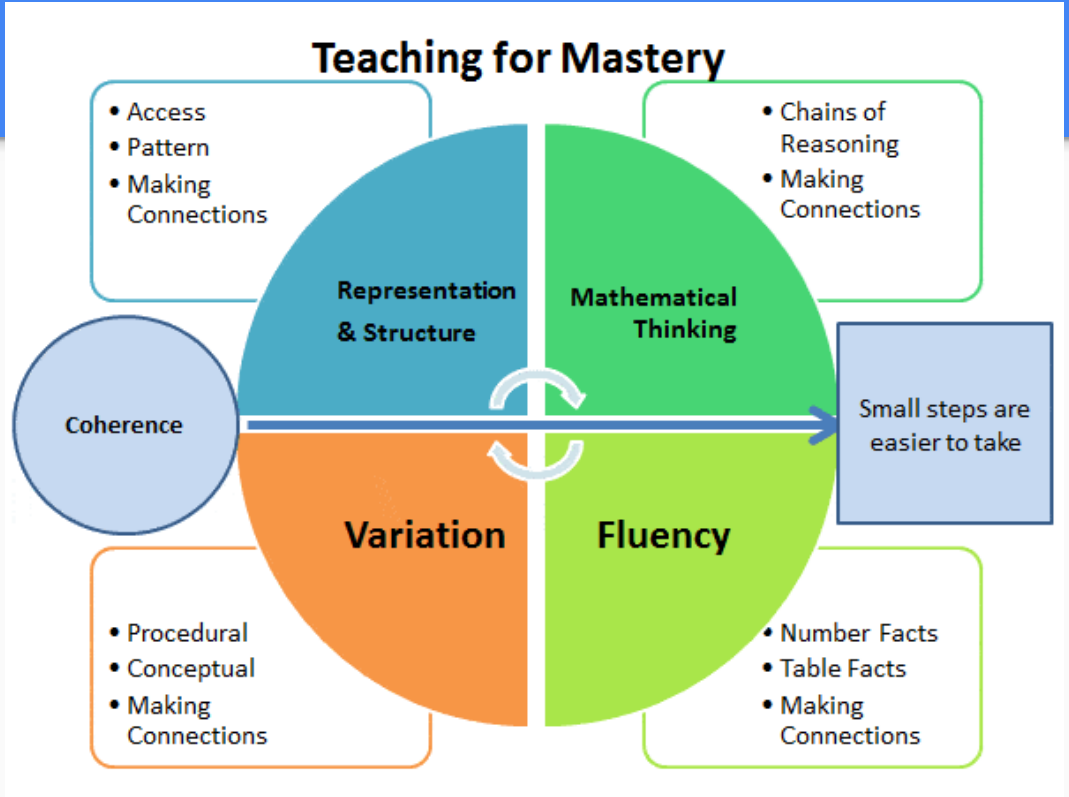
Maths Mastery



Agenda

Website

Times tables

Fluency, reasoning and problem solving

Website

Times tables

Times tables are fundamental to

many maths topics.

Freeing up working memory allows pupils

to develop their reasoning skills.

Order of learning

Year 2- 2s, 5s and 10s

Year 3- 4s, 3s, 6s, 9s, 8s and 7s

Year 4- 11s and 12s

Children need to understand and know the following facts about how times tables work before they start learning them and before they can master them.

Repeated addition

4 x 5 is the same as 5 + 5 + 5 + 5.

Multiplication is commutative

4 x 5 is the same as 5 x 4.

Multiplication is the inverse of division

20 ÷ 5 = 4 can be worked out because 5 x 4 = 20.

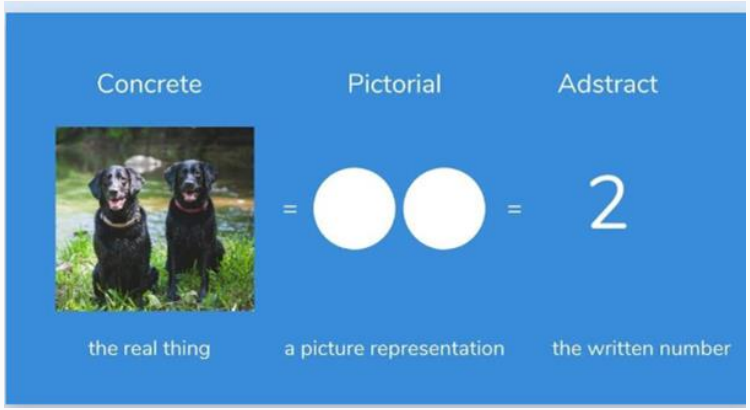
Number families

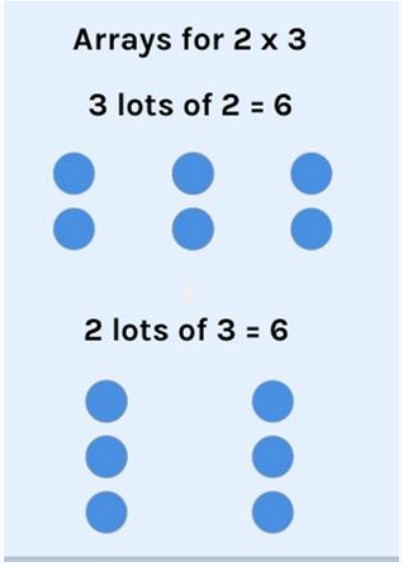
4 x 5 = 20, 5 x 4 = 20, 20 ÷ 5 = 4, 20 ÷ 4 = 5

144 Club Test!

What can you do at home to support your child with their times tables?

- Use play or objects to understand numbers
- Number lines can help visualisation when teaching your child about times tables
- Use the CPA (concrete-pictorial-abstract) approach
- Use arrays
- Play games
- Regular practice





Fluency, reasoning and problem solving

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

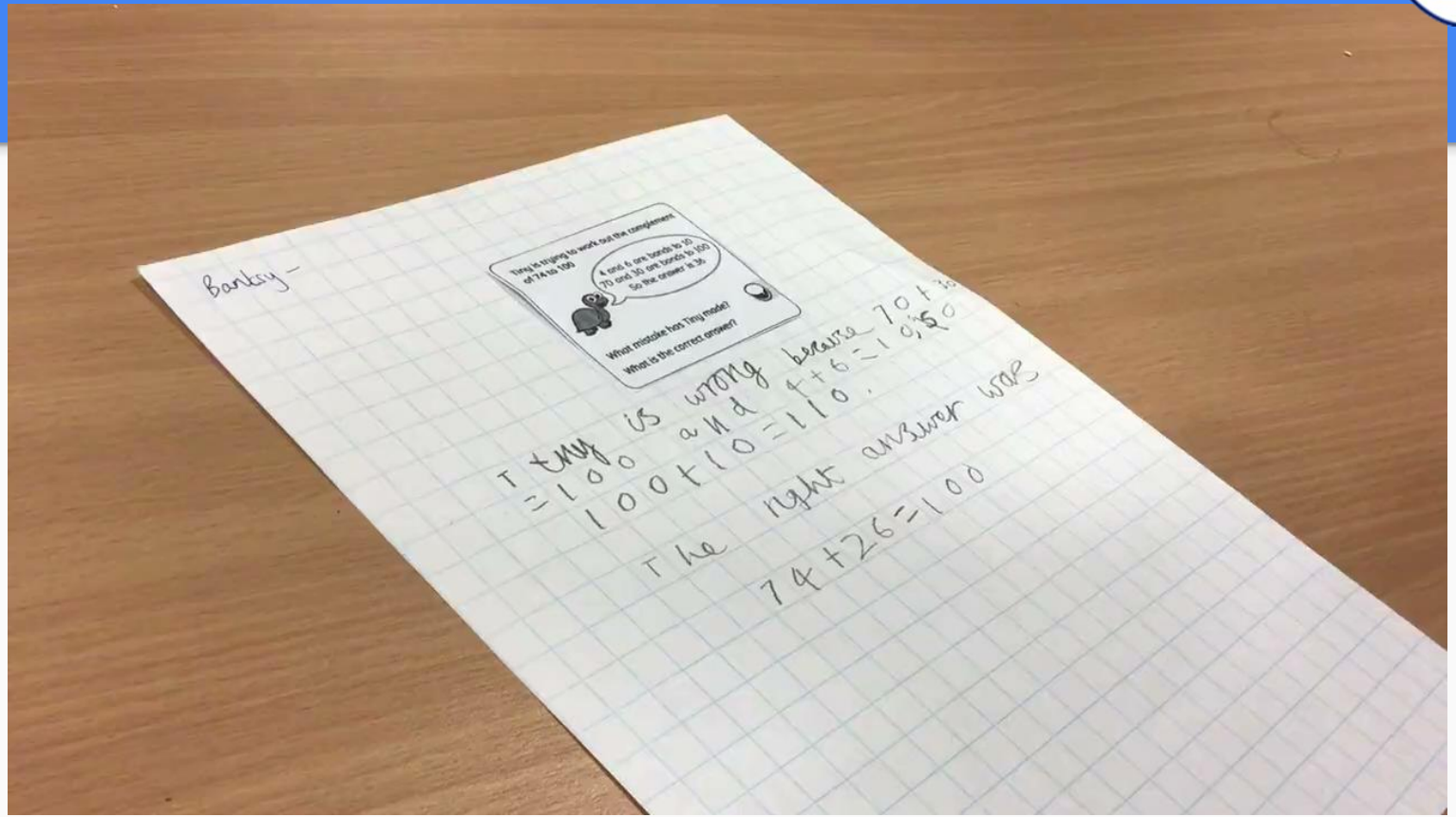
What is fluency, reasoning and problem solving?

Fluency- involves knowing key mathematical facts and being able to recall them quickly and accurately. Children should also be able to apply the same skill to multiple contexts, and be able to choose the most appropriate method for a particular task.

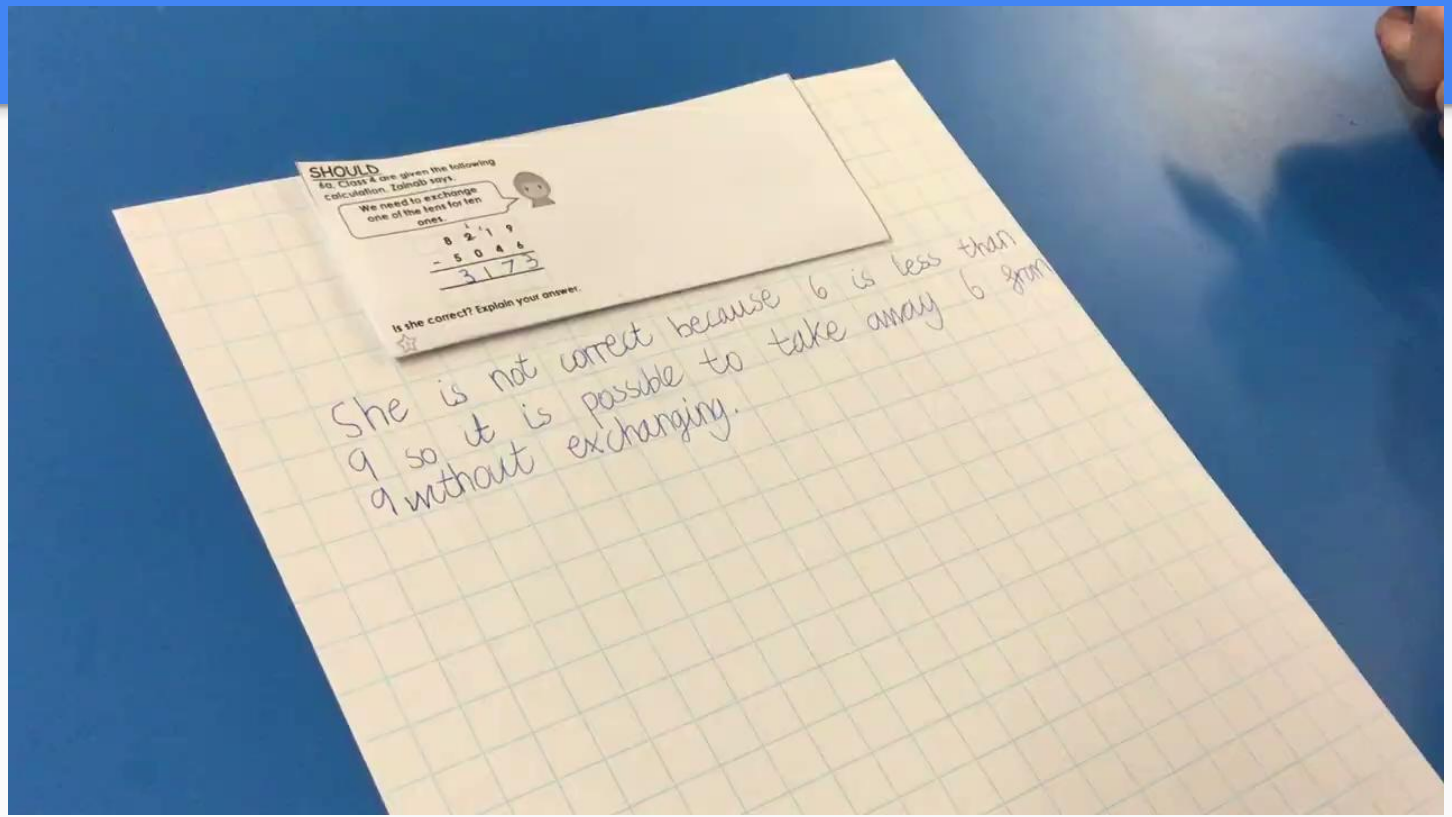
Reasoning- the process of applying logical thinking to a situation to derive the correct problem solving strategy for a given question, and using this method to develop and describe a solution.

Problem solving- finding a way to apply knowledge and skills you have to answer unfamiliar types of problems.

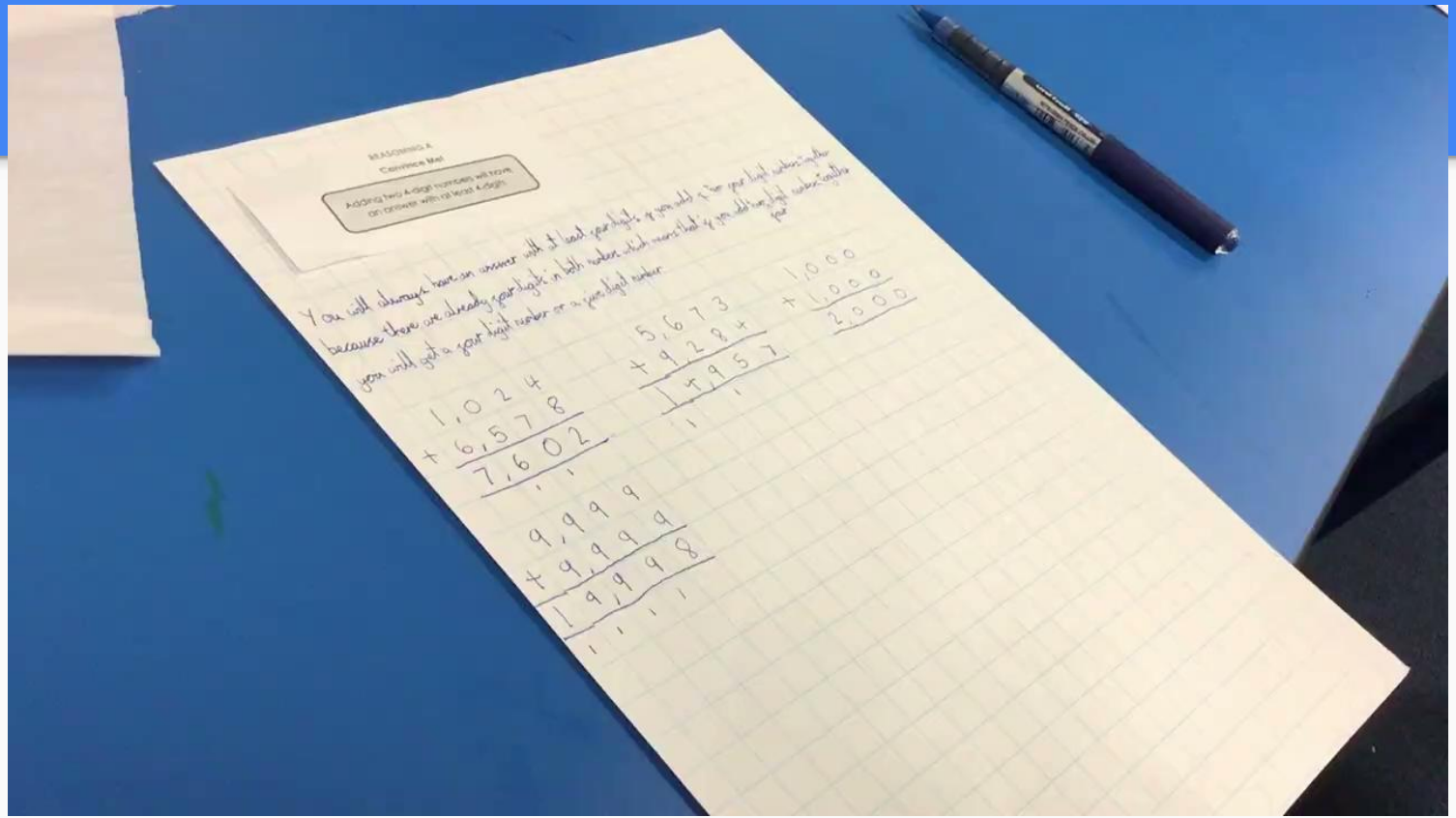
Jaymond, Year 3



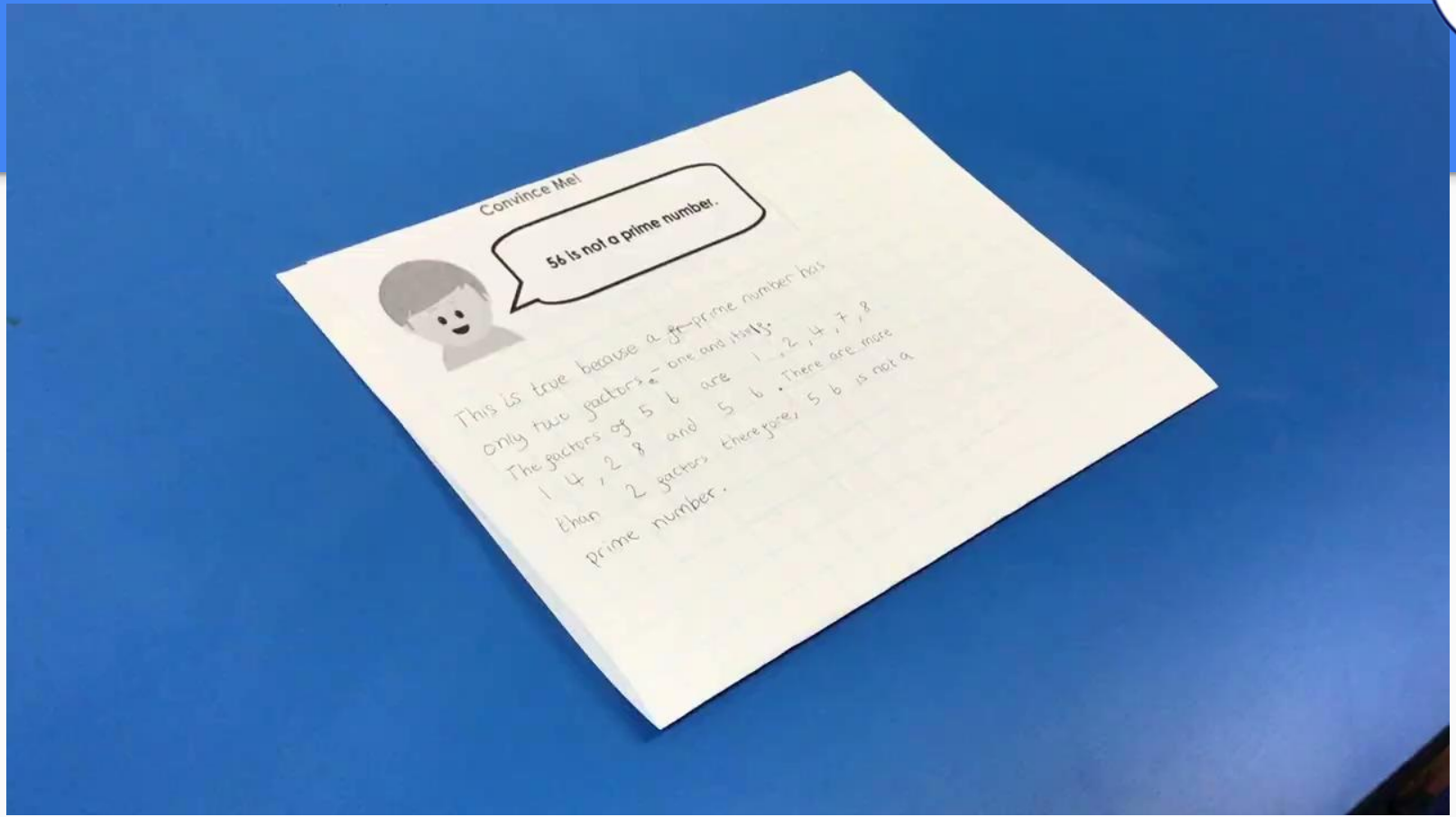
Ian, Year 4


SHOULD
60. Class 4 are given the following calculation. Zainab says:
We need to exchange one of the tens for ten ones.
8 2 1 9
- 5 0 4 6
3 1 7 5
Is she correct? Explain your answer.
She is not correct because 6 is less than 9 so it is possible to take away 6 from 9 without exchanging.

Ellie, Year 5

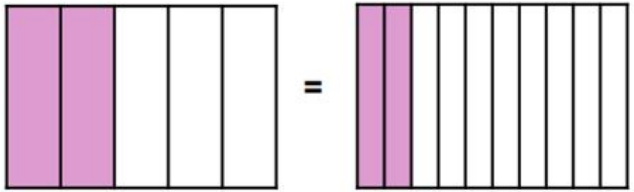

Adding two 4-digit numbers will never
an answer with more than 4 digits
You will always have an answer with at least four digits, if you add 1 to your highest number
because there already your highest in both numbers which means that if you add one highest number
your will get a four digit number or a five digit number
1,024
+ 6,578
7,602
5,673
+ 9,284
14,957
1,000
+ 1,000
2,000
9,999
+ 9,999
19,998

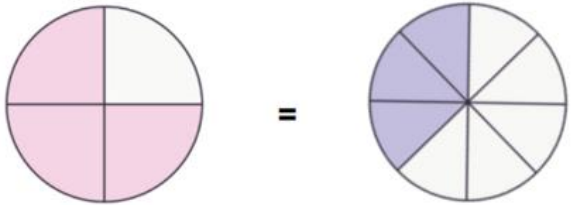
Vivian, Year 6



Now it's your turn to have a go!

5a. Dwayne has drawn some equivalent fractions.

A.  =

B.  =

Find and explain any mistakes.

3b. Sadia says,

My number 1,167 is 3 times larger than 389.

Is Sadia correct? Prove it.

9a. David and Ken have each bought some football stickers.

David says,

I bought more because I have 10 lots of 256 stickers.

Ken says,

I bought more because I have 265 lots of 10 stickers.

Who has bought the most? Prove it.

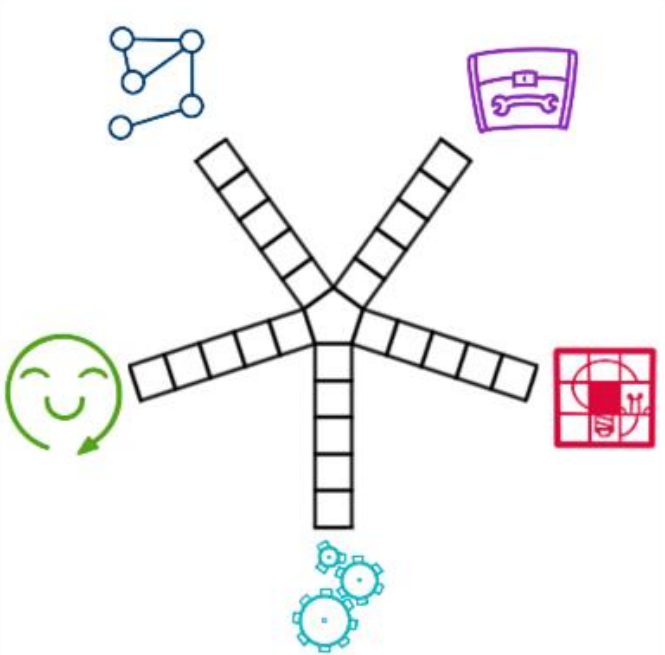
Key ingredients to be a successful mathematician

Understanding - Maths is a network of linked ideas. I can connect new mathematical thinking to what I already know and understand.

Tools - I have a toolkit that I can choose tools from to help me solve problems. Practising using these tools helps me become a better mathematician.

Problem solving - Problem solving is an important part of Maths. I can use my understanding, skills and reasoning to help me work towards solutions.

Reasoning - Maths is logical. I can convince myself that my thinking is correct and I can explain my reasoning to others.



Attitude - Maths makes sense and is worth spending time on. I can enjoy Maths and become better at it by persevering.

How else can you help at home with maths?

Life skills

- Speak positively about maths
- Use mathematical vocabulary correctly e.g. sum, exchanging
- Time in general
- Cooking/baking- weighing ingredients, estimating amounts, timing etc
- Get them to work out how much things cost in a supermarket
- Budgeting money and saving
- Problem solving in real life
- Train maps and tube maps e.g. how many stops? How many miles? Speed limit?


Thank you
for listening