

‘Going beyond just knowing.’

The National Curriculum aims for all pupils to: **calculate with fluency**, **reason mathematically**, and **solve problems**.

Whilst we recognise the importance of children being able to accurately and efficiently calculate, and quickly recall their **FUNDAMENTAL FACTS**, this year, we have been working hard to develop the children’s problem solving and reasoning skills: creating **mathematicians** over computers.

‘Mathematical thinking is not about speed. Mathematical thinking is not about memorising methods.’

Professor Jo Boaler 2015, ‘Mathematical Mindsets’ <https://www.youcubed.org/wp-content/uploads/2019/08/WIM-What-Does-it-Mean-to-be-Great-at-Maths-1.pdf>

Mathematicians:

- Like maths.
- Are flexible with number.
- Have a good sense of number.
- Apply knowledge: If I know this, then I also know this...
- Use compensation / manipulation of numbers to complete problems.
- Choose the most efficient methods based on the numbers involved.
- Can find different ways to show their workings out.
- Think slowly, deeply and carefully.
- Work systematically/ have a logical approach.
- Ask questions.
- Seek their own challenges.
- Spot patterns.
- Make links.
- Can explain how they know.
- Tries things out.
- Are not just interested in correct answers but think about the process.
- Get things wrong!
- Spot errors and correct them.
- Understand that learning can be tricky.
- Are resilient.

“Mathematical reasoning, even more so than children’s knowledge of arithmetic, is important for children’s later achievement in mathematics.”

Nunes et al. (2009) p.1

We encourage the children to reflect on their learning behaviours.

Do you show these qualities in maths lessons?

Our visual prompts promote independent mathematical thinking.

Could you use them when your child is working at home?

What can I do if I am ‘stuck’?

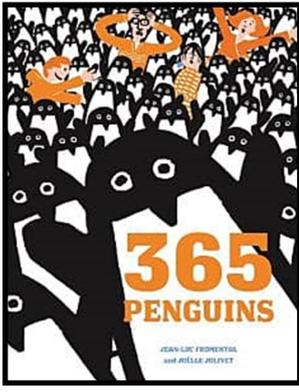
THINK! **HAVE A GO!** **TRY SOMETHING!**

-  What does the maths look like?
Can I make it?
Can I draw it?
-  What else do I already know?
-  What maths facts could I use?
-  What other maths does it link to?

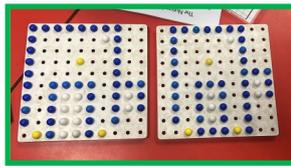
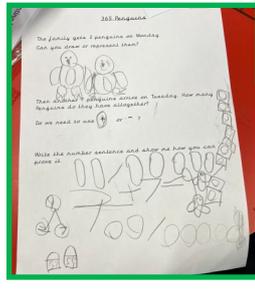
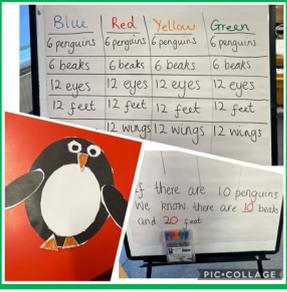
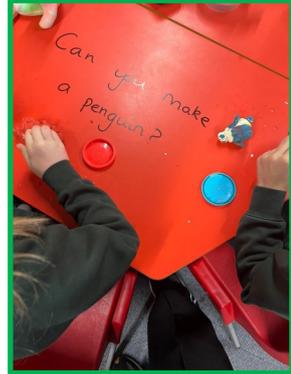
 Make it	 Draw it
 Write it	 Prove it

365 PENGUINS — our whole-school problem-solving event.

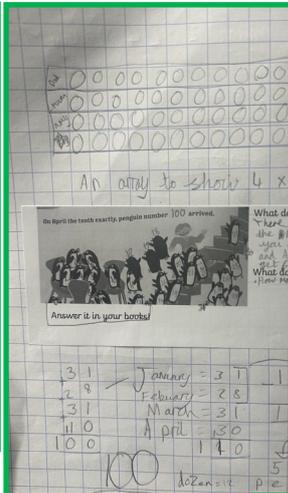
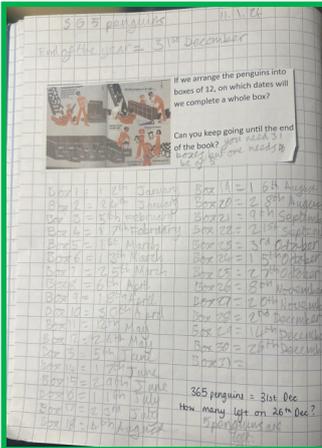
Each class has been using this book as a context for their maths learning.



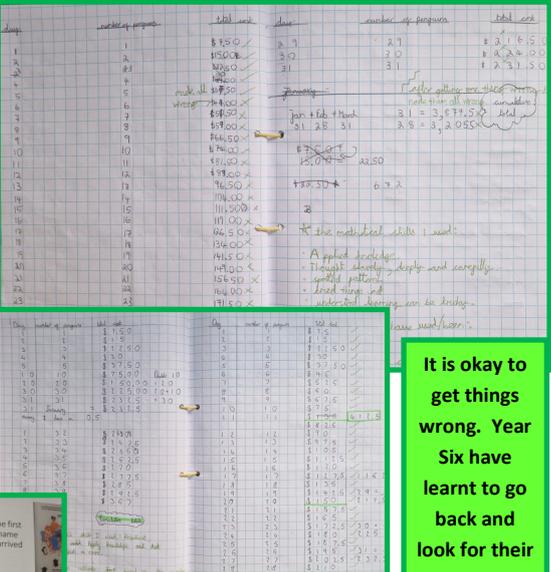
Our Reception children are proud of their subitising: recognizing amounts without counting is an important skill for understanding the value of numbers.



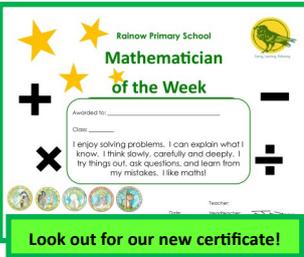
Year One have used lots of resources and drawings to work out solutions to questions such as 'How many eyes?' and 'How many feet?'. Some of them now, very proudly, know that there are 365 days in each year!



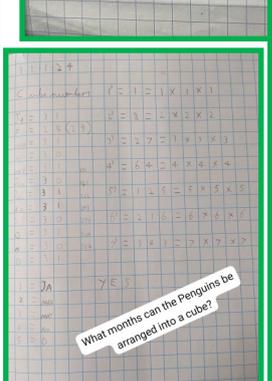
Year Four worked logically to organize the penguins into boxes of 12, using and applying their times-table knowledge. They are developing different ways to record their thinking: drawings, jottings and creating tables.



It is okay to get things wrong. Year Six have learnt to go back and look for their errors and reflect on their learning.



Year Five applied their knowledge of cube numbers and months of the year.



What do we know? What don't we know? What do we need to know?



Creating tables helps us organize our workings out.

You can get more information about our maths curriculum from your child's teacher or Mrs Eddie, (Maths Subject Lead and Specialist Primary Mathematics teacher).