HOW WE TEACH MATHEMATICS YEAR 1-YEAR 3

10th June 2025

Everything in the Universe Is Made of Maths – Including You!

WHEN AM I EVER GOING TO USE MATHS?

WHO EMPLOYS MATHEMATICIANS?

Accountancy | Aerospace & Defence | Automotive Biosciences | Business support services | Chemicals | Construction | Consultancies | Education | Engineering | Environment | Exploration Geophysics | Financial Services | Food & Drink | Government | Healthcare | Insurance | IT & Computing | Manufacturing | Media | Metals & Minerals | Operational Research | Pharmaceuticals | Recruitment | Academic Research | Science | Telecoms | Transport/Travel | Utilities

Maths skills are essential in every career and employers want staff with good skills.

Whatever career path your child chooses, they'll need to be able to use maths every day.

THE NATIONAL CURRICULUM FOR MATHEMATICS AIMS:

- Fluency
- Reasoning
- Problem-solving

HOW MATHS IS TAUGHT IN OUR SCHOOL TO ACHIEVE NC AIMS

- Mastery approach
- Concrete Pictorial Abstract approach

MASTERY APPROACH

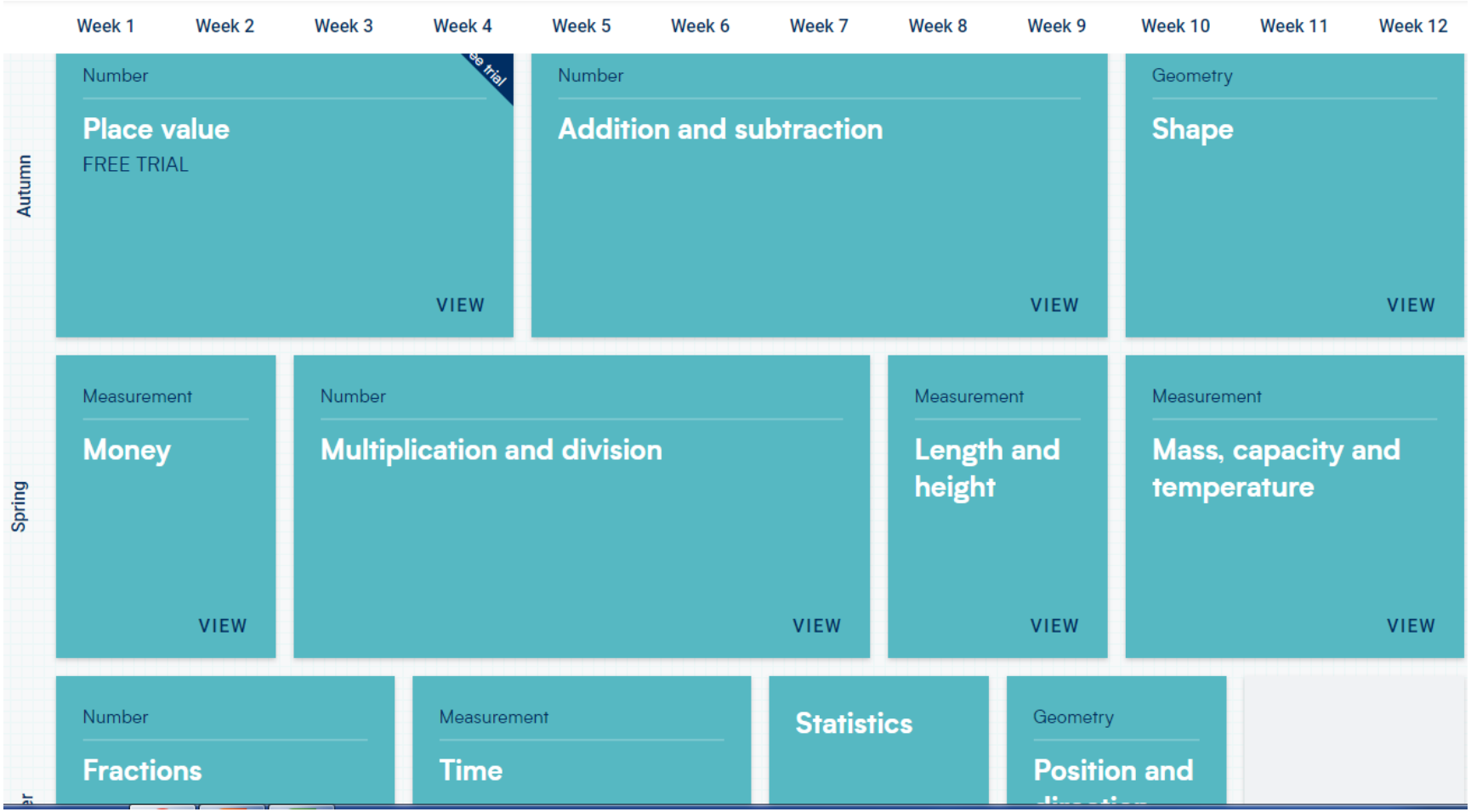
- **Puts numbers first:**
  We believe confidence with numbers is the first step to competency in the curriculum as a whole.

- **Puts depth before breadth**:
  We reinforce knowledge again and again.

- **Encourages collaboration**:
  Children can progress through the schemes as a group, supporting each other as they learn.

- **Focuses on fluency, reasoning and problem solving**:
  It gives children the skills they need to become competent mathematicians.

MASTERY APPROACH

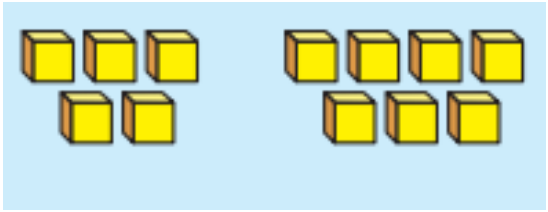


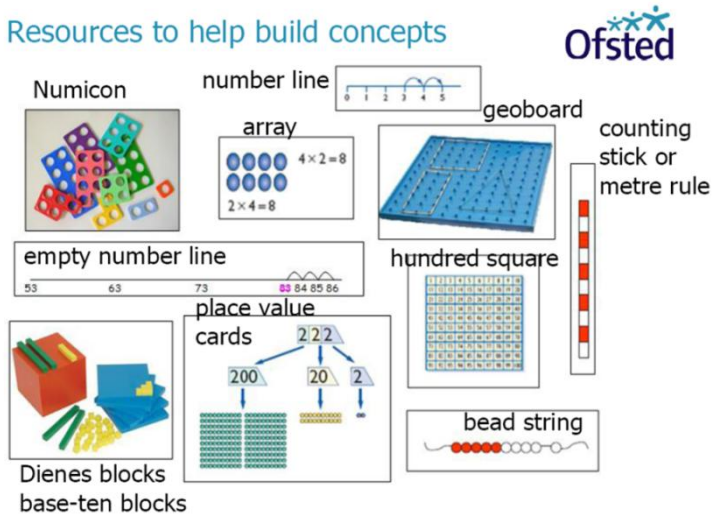
CONCRETE PICTORIAL ABSTRACT

- At the heart of our mastery approach is the Concrete Pictorial Abstract (CPA) approach. Research shows that when children are introduced to a new concept, working with concrete physical resources and pictorial representations leads to a better understanding of abstract concepts.

CONCRETE

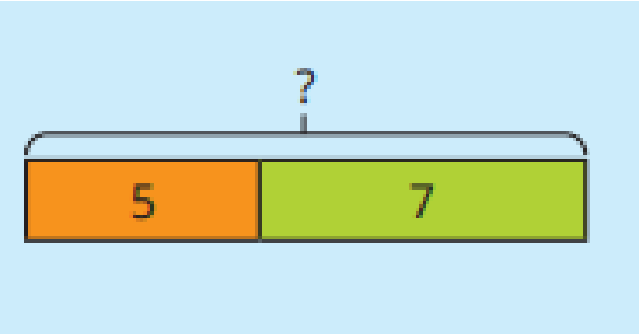
Children should have the opportunity to work with physical objects/concrete resources, in order to bring the maths to life and to build an understanding of what they are doing.





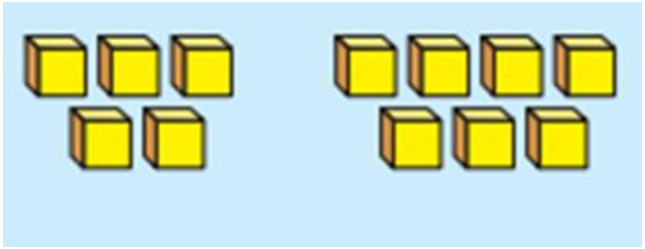
PICTORIAL

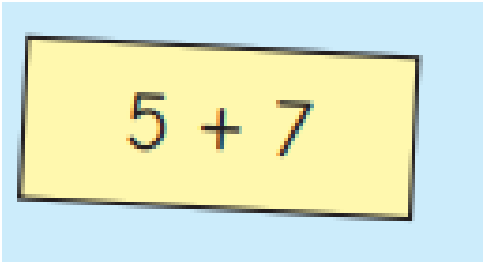
Alongside concrete resources, children should work with pictorial representations, making links to the concrete. Visualising a problem in this way can help children to reason and to solve problems.



ABSTRACT

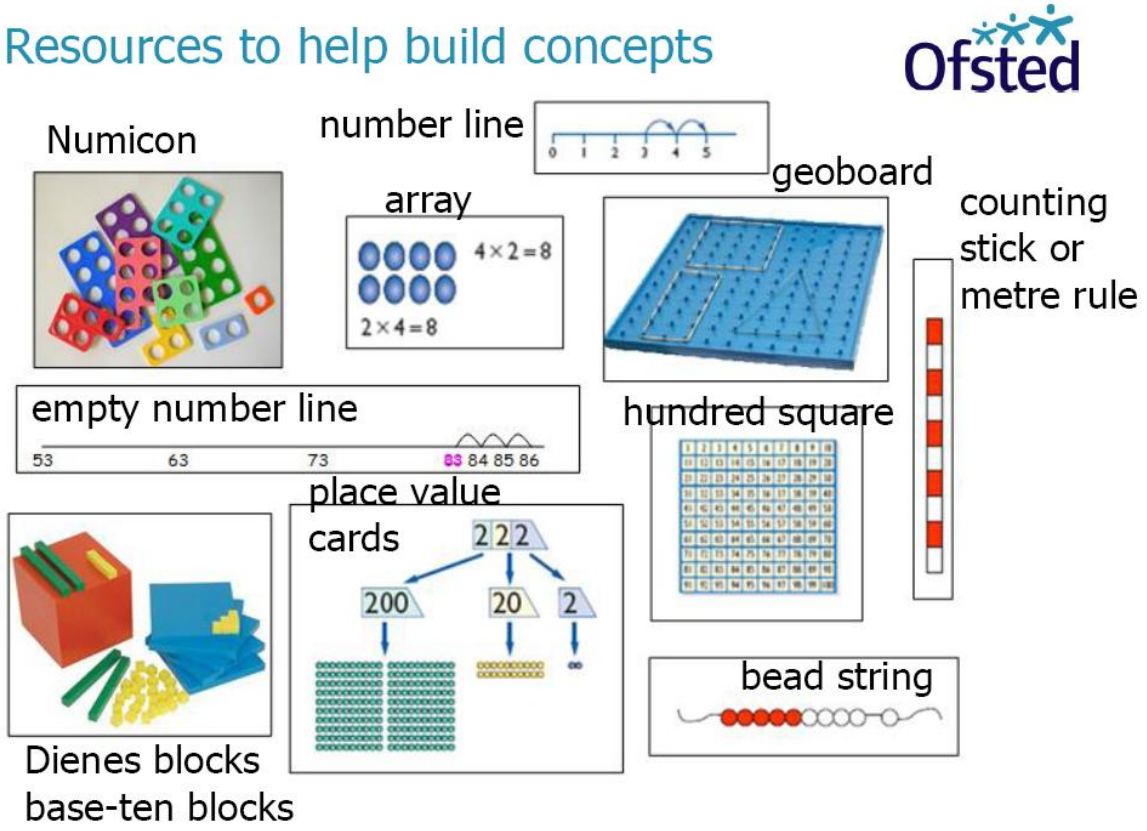
With the support of both the concrete and pictorial representations, children can develop their understanding of abstract methods.





PRACTICAL

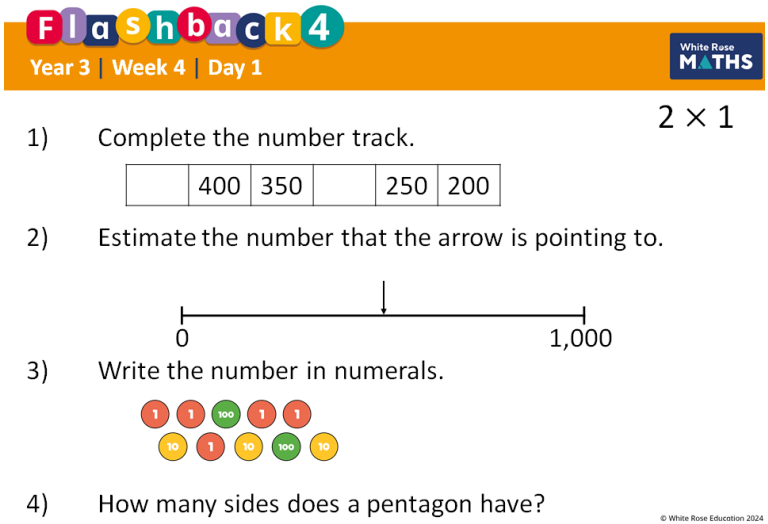
Practical and related to everyday experiences.



LESSON IN THE CLASSROOM

Flashback

Flashback 4 starter activities to improve retention.
Q1 is from the last lesson;
Q2 is from last week;
Q3 is from 2 to 3 weeks ago;
Q4 is from last term/year.
There is also a bonus question on each one to recap topics such as telling the time, times-tables and Roman numerals.



FLASHBACK- FOR FLUENCY AND REINFORCEMENT (PRACTICE)

Flashback 4

Year 3 | Week 4 | Day 1

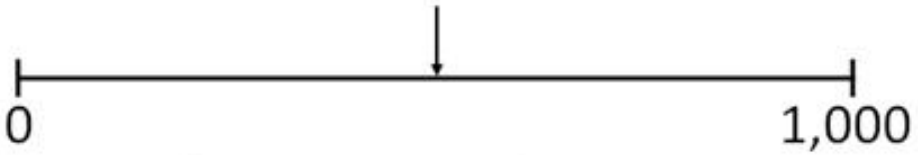
White Rose MATHS

2×1

1) Complete the number track.

	400	350		250	200

2) Estimate the number that the arrow is pointing to.

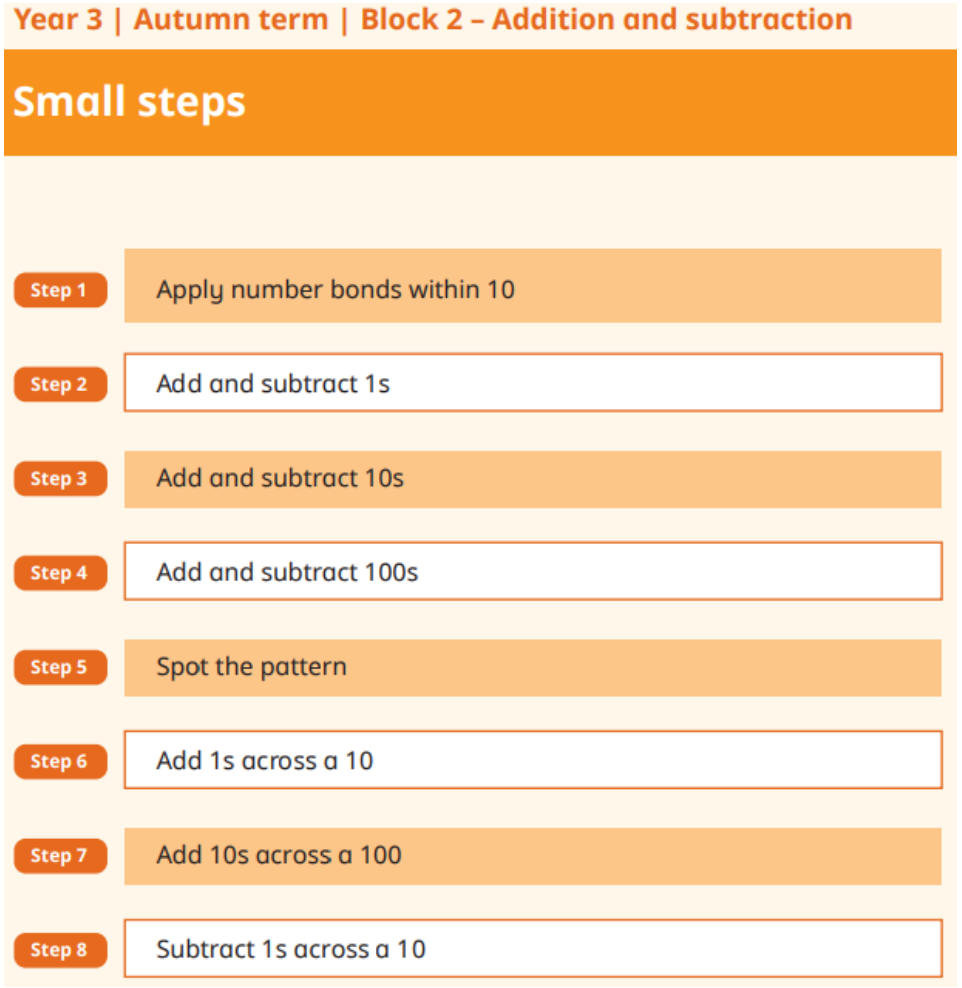


3) Write the number in numerals.

4) How many sides does a pentagon have?

SMALL STEPS

Every block is broken down into manageable small steps e.g.



Year 3 | Autumn term | Block 2 – Addition and subtraction

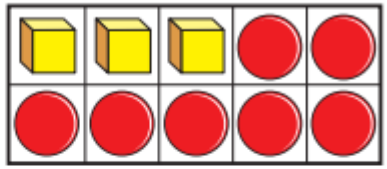
Small steps

Step 1	Apply number bonds within 10
Step 2	Add and subtract 1s
Step 3	Add and subtract 10s
Step 4	Add and subtract 100s
Step 5	Spot the pattern
Step 6	Add 1s across a 10
Step 7	Add 10s across a 100
Step 8	Subtract 1s across a 10

CONCRETE RESOURCES AND KEY QUESTIONING

The use of concrete resources such as counters and ten frames, Rekenreks or even their fingers can support children in finding bonds for numbers within 10.

- Here is a ten frame.



How many cubes are there?

How many counters are there?

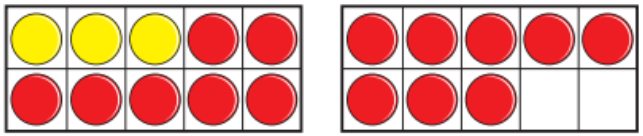
How many objects are there in total?

Complete the number sentence.

_____ + _____ = 10

Key learning

- Here is a number shown on ten frames.



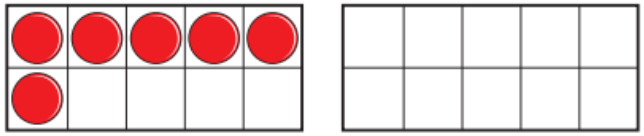
Complete the fact family to match the ten frames.

_____ + _____ = 18 18 – _____ = _____

_____ + _____ = 18 18 – _____ = _____

Can you write any of the facts another way?

- Ann puts some counters on a ten frame.

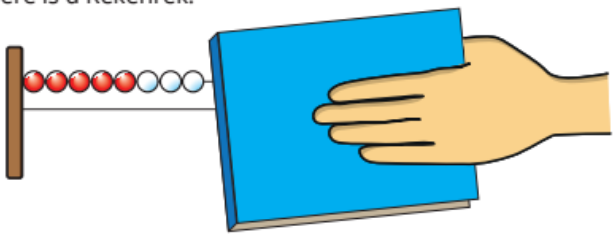


How many more counters does Ann need to make 20?

Write a number sentence to show the bond to 20

Write the fact family for the number sentence.

- Here is a Rekenrek.



How many beads are covered?

Write a number sentence to show the bond to 20

Write the fact family.

As a class, use a Rekenrek to find bonds to 20

Ask children how many different bonds they can find, and to write a fact family for each bond.

- Complete the number sentences.
  - 13 + _____ = 15
  - _____ + 16 = 18
  - 20 = 11 + _____
  - 12 = _____ + 0

STEM SENTENCES TO SUPPORT ORACY

Possible sentence stems

- If I have _____ counters, I need to add _____ more counters to make 10
- I need to add _____ to _____ to make 10

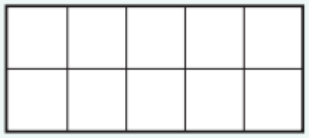
PRACTICAL INDEPENDENT ACTIVITIES

Working together in mixed ability groups to encourage independence and collaboration.

REASONING AND PROBLEM SOLVING

Reasoning and problem solving

Start with an empty ten frame.



Ask children how many counters they need to make 10

Show 1 on the ten frame.

Ask children, again, how many counters are needed to make 10

Work systematically with the children to find all the number bonds to 10

Encourage fluent recall rather than counting, and write a number sentence for each bond.

Ask children if any of the number sentences show the same number bond.

Children should notice that, for example, 4 + 6 and 6 + 4 are the same number bond.

Jo has made a number using counters.

I need 4 more counters to make 10

What number has Jo made?

How do you know?

Tiny is finding bonds to 10

$1 + \boxed{0} = 10$

Explain the mistake Tiny has made.

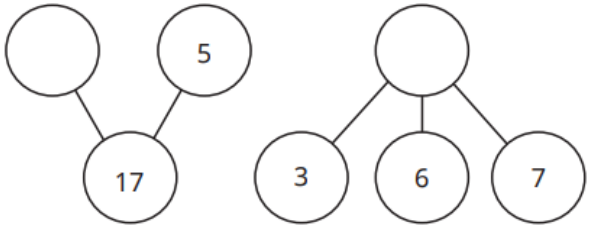
What is the missing number?

ASSESSMENT AT THE END OF EACH UNIT

Addition and subtraction

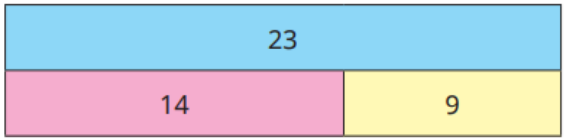
Name: _____

1 Complete the part-whole models.



2 marks

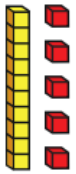
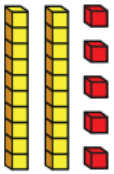
2 Use the bar model to complete the number sentences.



9 + ☐ = 23

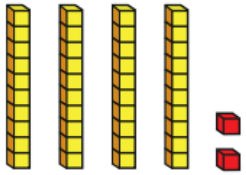
☐ − ☐ = 14

3 Complete the table.

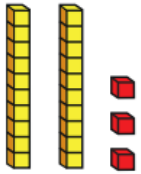
10 less	Number	10 more
		
5	15	

2 marks

4 Max makes this number.



Jo makes this number.



What is the total of their numbers? ☐

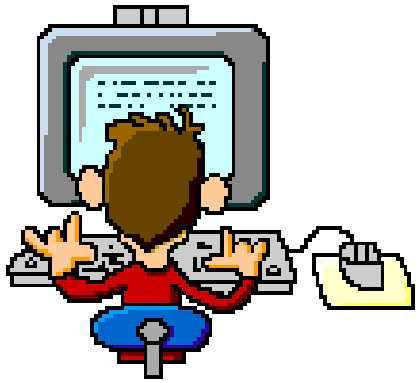
TIMES TABLES

Expectations:

- To recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables by the end of year 2.
- To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables by the end of Year 3.
- To recall multiplication and division facts for multiplication tables up to 12 × 12 by the end of Year 4.

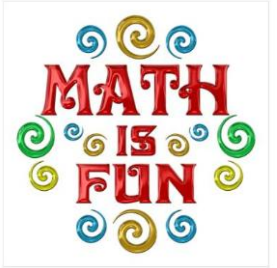
TIMES TABLE CHECK IN YEAR 4

- Pupils will be asked to give timed responses to a series of multiplication questions and the tests will be scored instantly.



SUPPORTING MATHS AT HOME
1. FOSTER A POSITIVE LEARNING ENVIRONMENT:

- Be positive and enthusiastic about maths:
- Avoid expressing negative attitudes about maths yourself, as children often pick up on parental feelings.
- Create a maths rich environment:
- Incorporate math into daily routines, such as when shopping, cooking, or travelling.
- Use manipulatives:
- Objects like blocks, coins, or even everyday items can help make abstract math concepts more concrete.
- Play maths games:
- Board games, card games, and even online games can make learning maths fun and engaging.



SUPPORTING MATHS AT HOME
2. MAKE MATHS RELATABLE:

- Point out maths in everyday life:
- Involve your child in activities that involve numbers, measuring, or problem-solving, such as baking, shopping, or gardening.
- Relate maths to their interests:
- Use examples that resonate with your child's passions, whether it's sports, music, or video games.
- Encourage them to teach you maths
- Getting them to explain concepts to you can help solidify their understanding.

SUPPORTING MATHS AT HOME
3. PROVIDE OPPORTUNITIES FOR PRACTICE AND EXPLORATION:

- Practice regularly: Even short, regular maths practice sessions can be beneficial.
- Set aside dedicated home-learning time:
- Encourage them to explain their thinking: Ask them to describe how they solved problems, which can help them identify areas where they need more support.
- Explore online resources: Many websites and apps offer free or low-cost math games and activities.

SUPPORTING MATHS AT HOME

4. ENCOURAGE A GROWTH MINDSET:

- Praise effort and perseverance:
- Focus on the hard work your child puts in rather than just their ability.
- Celebrate successes, big and small:
- Acknowledge their accomplishments and encourage them to keep trying even when they face challenges.
- Emphasise that maths is a process, not a destination:
- Explain that everyone learns at their own pace and that it's okay to make mistakes.

SUPPORTING MATHS AT HOME
5. SPECIFIC MATH SKILLS TO PRACTICE:

- Counting:
- Practice counting objects, numbers, or even steps while walking.
- Addition and Subtraction:
- Use everyday examples, such as adding the price of items at the store or figuring out how much change to get.
- Multiplication and Division:
- Introduce these concepts through real-world examples, such as dividing a pizza equally among friends.
- Measurement:
- Involve your child in activities that involve measuring, such as cooking or gardening.
- Time:
- Talk about the time at which different events happen and look at the clock together.
- By creating a supportive and engaging environment for learning, you can help your child develop a love for math and build a strong foundation for future success.

WEBSITES TO PRACTICE TIMES TABLES

https://emile-education.com/log-in-to-emile-resources/

https://www.timestables.co.uk/6-times-table.html

https://www.topmarks.co.uk/maths-games/7-11-years/times-tables

http://www.maths-games.org/time tables-games.html

http://www.mad4maths.com/multiplication_table_math_games/