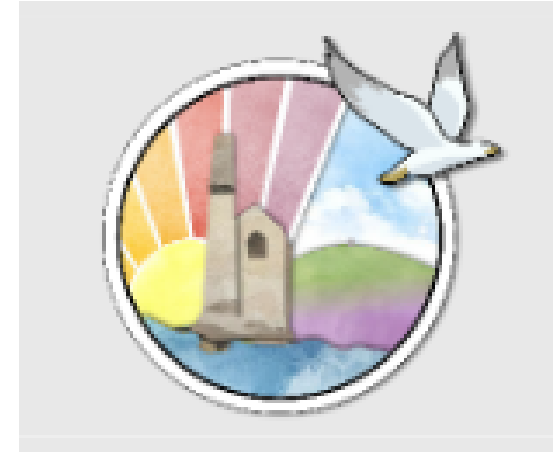# Parents' Mathematics Information Evening

In our most recent survey, parents asked for more information about maths teaching, learning and expectations in our school. I hope the information given tonight will be useful, but we will also take questions and answers at the end if there is anything you would like to know that is not covered.

We will take a look at:

- Calculation policies
- End of year expectations
- White Rose Scheme
- Mastery/mastery for greater depth/Nrich
- Fluency/Automaticity

• Our Calculation Policies can be found on the Curriculum area of our school website. These outline how addition, subtraction, multiplication and division are taught in each year group.

• These policies can be downloaded for your use at home from the school website.
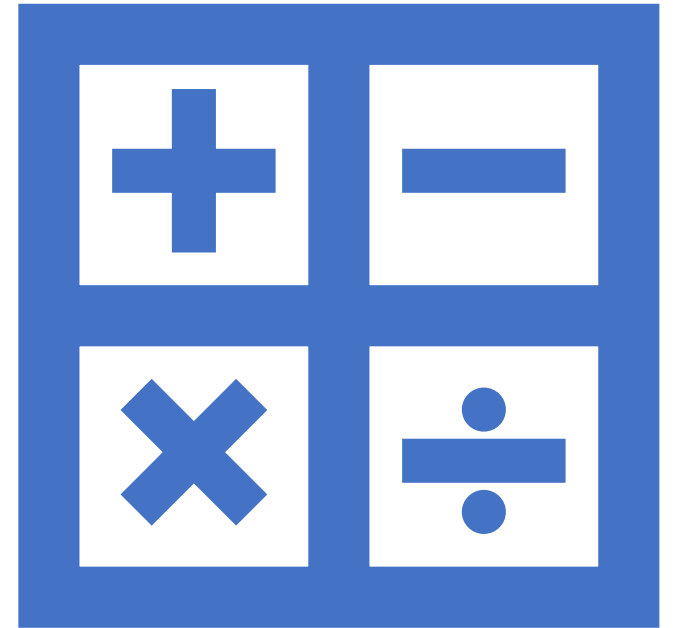
Your child should have brought home end of year expectations with their welcome letter (see next slide). These are the key objectives for the year group drawn from the National Curriculum (2014). These are also available on the curriculum area of the school website (albeit in a different format)-scroll right down to the bottom of the curriculum menu.
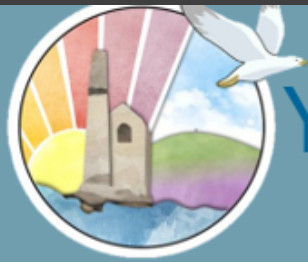
Year 4 End of Year Expectations

Reading

Listen to and discuss a wide range of texts

Read books with different structures and purposes

Use dictionaries to check the meaning of words

Identify themes in books

Perform poems and plays

Discuss words and phrases used for effect

Show understanding of what they've read by being able to predict, explain, infer, and retrieve information

Identify main ideas drawn from more than one paragraph

Participate in discussions about books they read independently and books that are read to them.

Writing

Write for a range of purposes and audiences in fiction, non-fiction and poetry.

Vary sentence length

Vary sentence openers for effect

Use both compound and complex sentences

Use conjunctions, prepositions and adverbs to express time and cause

Use fronted adverbials

Use expanded noun phrases

Punctuate direct speech

Use apostrophes for possession (singular & plural)

Use nouns and pronouns to avoid repetition

Use of full stops, question marks and exclamation marks correctly

Use commas after fronted adverbials

Use vocabulary drawn from reading

Use joined and fluent handwriting

Spell all of the words on the Y3/4 Word list

Apply all Year 4 spelling rules and patterns (see English termly overviews below for more detail)

Maths

Count backwards through zero to include negative numbers.

Compare & order numbers beyond 1000.

Compare & order numbers with 2 decimal places.

Read Roman numerals to 100.

Find 1000 more/less than a given number.

Count in multiples of 6, 7, 9, 25 & 1000.

Recall & use multiplication & division facts all tables to 12x12.

Recognise PV of any 4-digit number.

Round any number to the nearest 10, 100 or 1000.

Round decimals with 1dp to nearest whole number.

Add & subtract: Numbers with up to 4-digits using efficient written method (column) and numbers with up to 1dp.

Multiply: 2-digit by 1-digit and 3-digit by 1-digit

Divide: 3-digit by 1-digit

Count up/down in hundredths.

Write equivalent fractions

+/- fractions with same denominator.

Read, write & convert time between analogue & digital 12 & 24 hour clocks

- We use the White Rose maths 'mastery' scheme of work. You can access some free content on [their website](#) from home.

Because we subscribe, we can access arrange of [additional resources](#) e.g., animated Powerpoints, for use in the classroom.

For use in everyday life, and in mathematical occupations, our children need to go beyond simply calculating 'answers'- They need to be able to understand the methods they are using and apply them to problem solving.

In collaboration with 'Oxford Owls' publishers, the NCETM has produced some [assessment booklets](#) that show what 'mastery' and 'mastery at greater depth' look like. (See example on p.22 of year 4)

Instead of more able children being accelerated onto the next year's curriculum content, they are asked to apply their current year's learning flexibly to new types of problems. The most able thrive on attempting longer, more in depth problems, such as those on the Nrich website.

- Automatic recall of number facts (e.g., bonds to 20 and multiplication facts) is really important in freeing up working memory.

- If you know all the addition and subtraction facts to 20, then there is plenty of 'space' available to think about the written method/ algorithm you are being taught.

- Once the algorithm is learnt to automaticity, there is plenty of space to consider how calculations can be applied to solve problems.

- Hence automatic recall benefits every learners at every level.

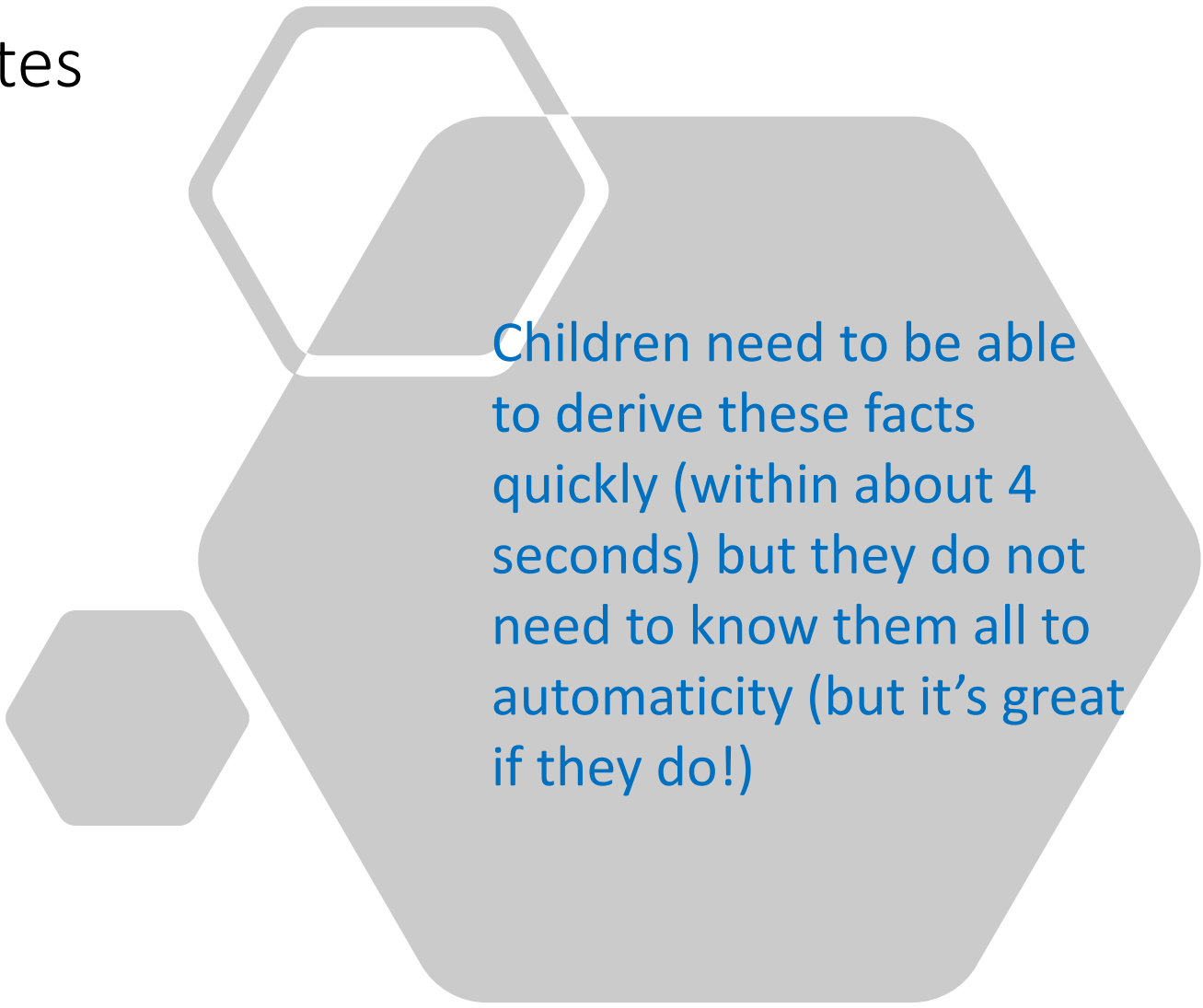- Luckily, there aren't too many facts to learn!

If we take out the 1x table, only 36 facts need to be automatically recalled in order to perform any written multiplication or division.

The most efficient way to learn number facts to automaticity is to hear them…all that time chanting tables was not in vain! Rhymes and songs will also help. Your child will be learning one 'fact family' from year 1 to year 4 every 2 weeks.

When learning times tables at home, focus on learning one or two new facts per day rather than the whole table.

The National Curriculum states that these tables should be taught:

- Year1: Count in steps of 2, 5 and 10

- Year 2: 2x, 5x and 10x and derive associated division facts

- Year 3: 3x, 4x and 8x and derive associated division facts

- Year 4: 6x, 7x, 9x, 11x 12x and associated division facts

Children need to be able to derive these facts quickly (within about 4 seconds) but they do not need to know them all to automaticity (but it's great if they do!)

Year 4 multiplication check

- An online test taken in June
- Children have 6 seconds to work out AND INPUT data
- Tables up to 12 x 12 are tested, but there are no division questions

- Almost identical to the check at www.timestables.co.uk –there are lots of other useful games and activities here too.
- Times Tables Rock Stars and Hit the Button are also great ways of practising the times tables, but they do need to be learnt first,

Preparing for Year 6 expectations and SATs

It is essential children know their times-tables and associated number facts.
e.g.

3 x 8 = 24
8 x 3 = 24
24 ÷ 8 = 3
24 ÷ 3 = 8

Using TTRS and other times-tables games help keep this fresh and helps with all areas of maths.

What is fluency in maths?
Fluency in maths is a fairly broad concept. The basics of mathematical fluency – as defined by the KS1 / KS2 National Curriculum for maths – involve knowing key mathematical facts and being able to recall them quickly and accurately. But true fluency in maths means being able to apply the same skill to multiple contexts, and being able to choose the most appropriate method for a particular task.
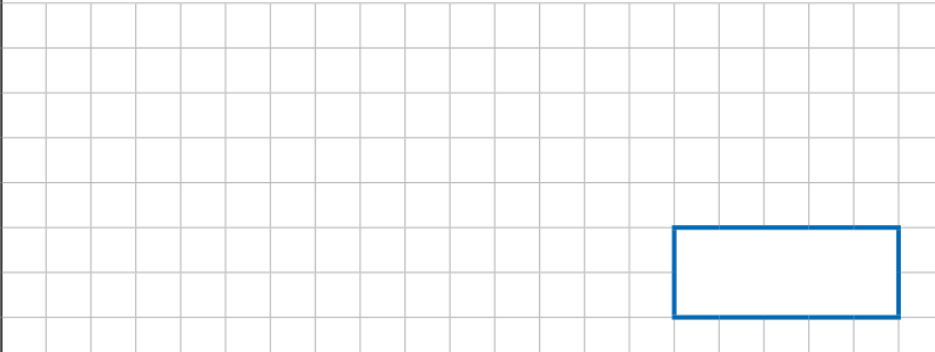Fluency in maths lessons means we teach the content using a range of representations, to ensure that all pupils understand and have sufficient time to practise what is taught.
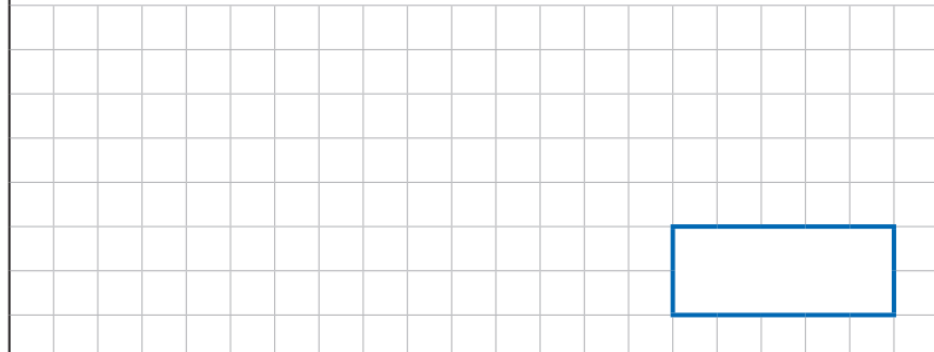
Arithmetic

$$6 \times \underline{\hspace{2cm}} = 24$$

$$48 \div \underline{\hspace{2cm}} = 6$$

11	$560 \div 7 =$

1 mark

12	$6 \times 10 \times 11 =$

1 mark

This will go home after half-term.

What is reasoning in maths?
Reasoning in maths is 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.

Put more simply, mathematical reasoning is the bridge between fluency and problem solving. It allows pupils to use the former to accurately carry out the latter.

What is problem solving in maths?

It's sometimes easier to start off with what problem solving is not. Problem solving is not necessarily just about answering [word problems](#) in maths. If a child already has a readily available method to solve this sort of problem, problem solving has not occurred. Problem solving in maths is finding a way to apply knowledge and skills you have to answer unfamiliar types of problems.
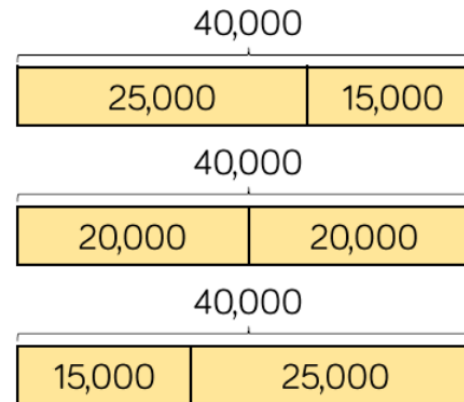
[5 on the Clock (maths.org)](#)

Problem 18

For every male cow on the farm, there are 7 female cows.

If there are 301 female cows, how many male cows are there?

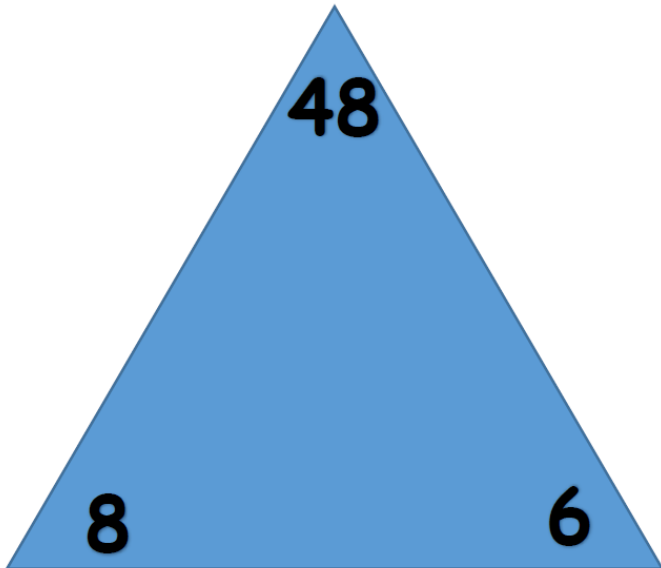**Star Question**

The bar models are showing a pattern.

40,000
| 25,000 | 15,000 |

40,000
| 20,000 | 20,000 |

40,000
| 15,000 | 25,000 |

Draw the next three.

Create your own pattern of bar models for a partner to continue.

Reasoning

1) Fill in the gaps below:

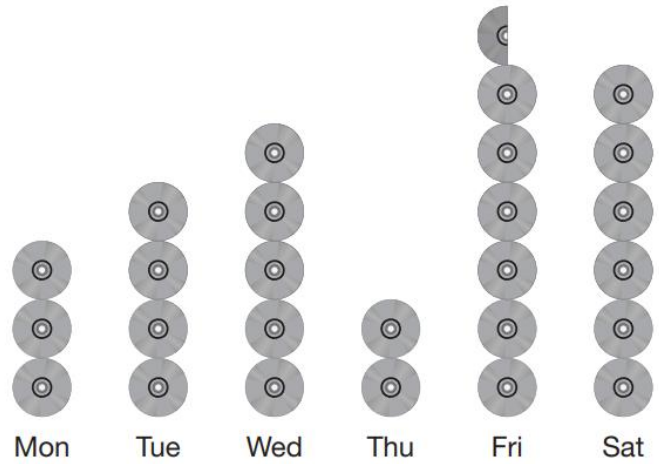| 6		18			36

3) Find all the number facts you can for the triangle below:

48

8   6

7) David says "I'm not confident with my six times tables but I know my threes so I can use these to help."
Is David correct? Explain your reasoning.

9 This pictogram shows how many DVDs a shop sells in one week.

| Mon | Tue | Wed | Thu | Fri | Sat |

On **Monday**, 24 DVDs were sold.

How many DVDs were sold on **Friday**?

[ ]

1 mark

11 Write the missing values.

$$\frac{3}{10} = \frac{\boxed{}}{20}$$

$$\frac{12}{15} = \frac{4}{\boxed{}}$$

1 mark

2 Here are six number cards.

| 3 | 4 | 5 | 6 | 7 | 8 |
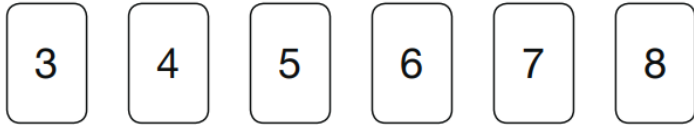
Use **all six** cards to complete the three multiplications below.

$$24 \ = \ \boxed{} \times \boxed{}$$

$$28 \ = \ \boxed{} \times \boxed{}$$

$$30 \ = \ \boxed{} \times \boxed{}$$

1 mark

Helpful websites

Dividing Fractions (mathsisfun.com)

KS2 Maths - BBC Bitesize

Key stage 2 tests: 2022 mathematics test materials - GOV.UK (www.gov.uk)

IXL | Maths and English Practice

Times Tables Rock Stars (ttrockstars.com)