

How do we teach maths at John Clifford School?
How can I support my child with maths at home?

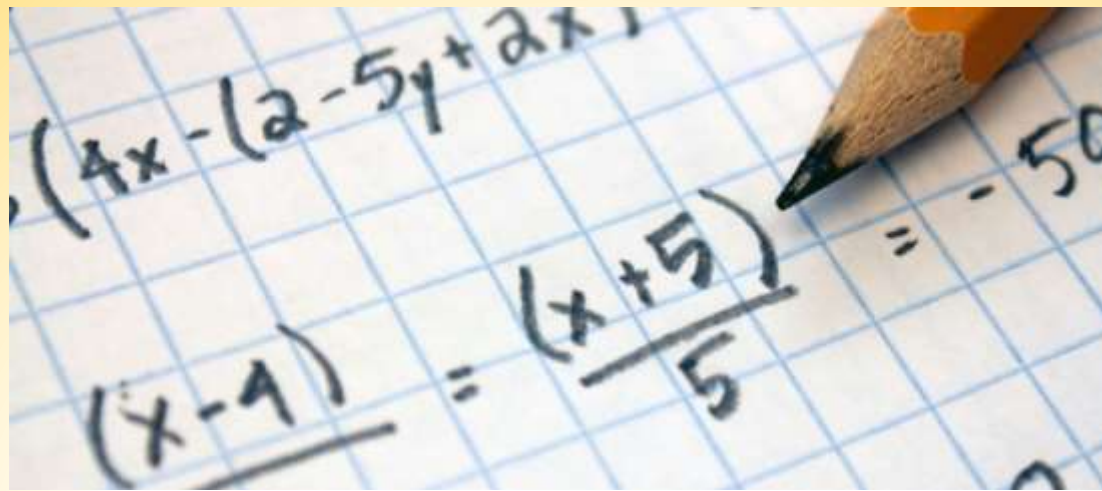
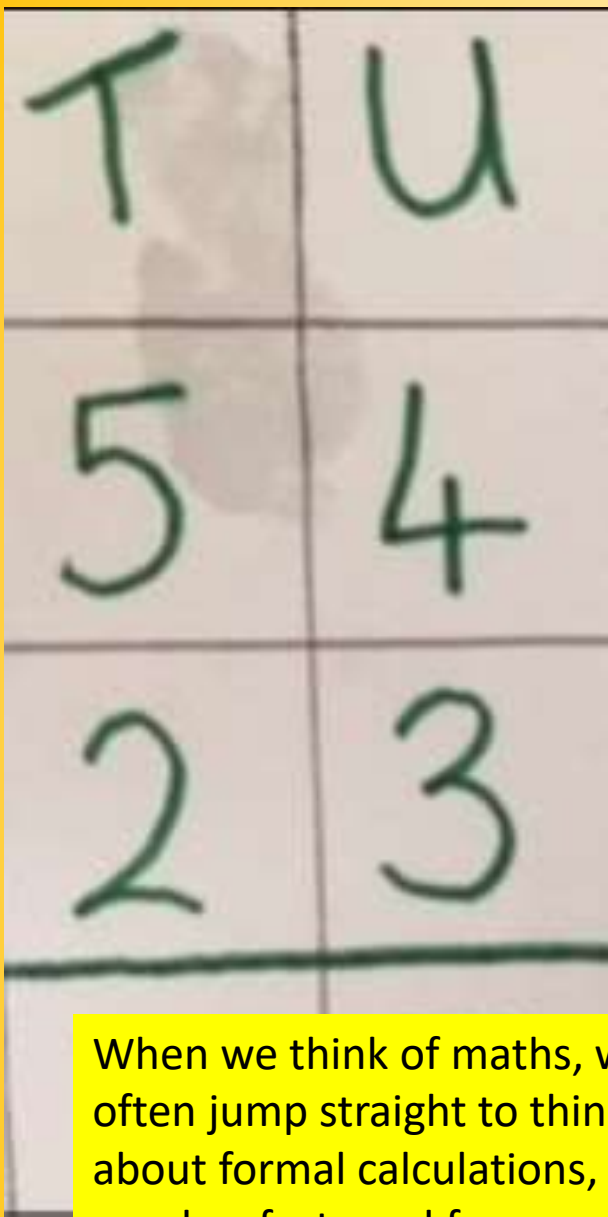
This is a version of a presentation that was delivered to parents and carers in 2022/ 2023. In it you will find an introduction to maths at John Clifford School, what we are trying to achieve and how parents and carers can help to support with this.



Parents' & Carers' Maths Morning
Mr J. Morris



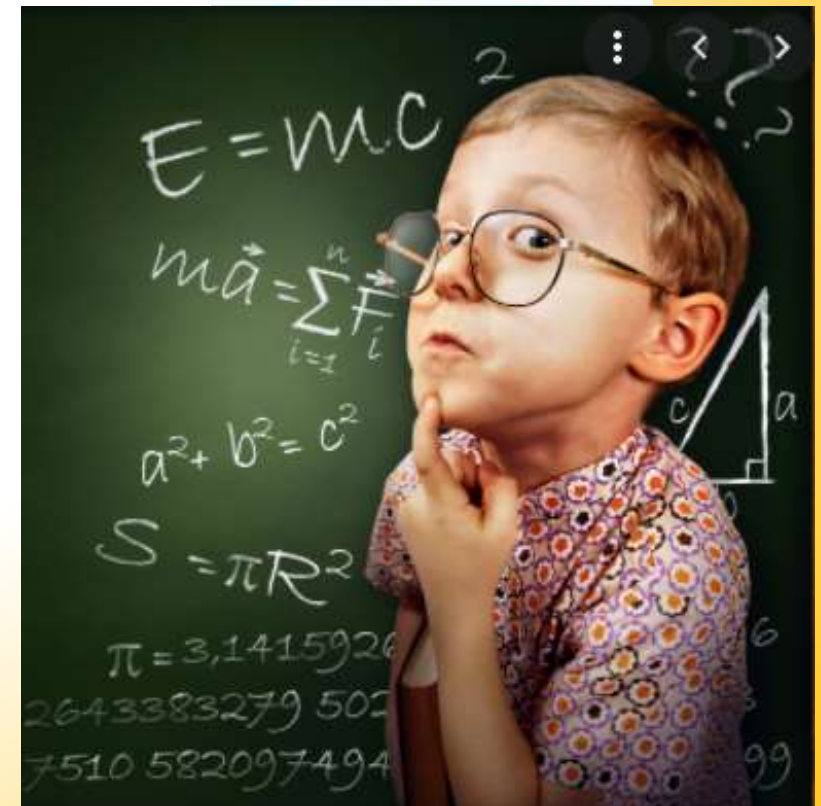
What is maths?



$1 \times 6 = 6$
$2 \times 6 = 12$
$3 \times 6 = 18$
$4 \times 6 = 24$
$5 \times 6 = 30$
$6 \times 6 = 36$
$7 \times 6 = 42$
$8 \times 6 = 48$

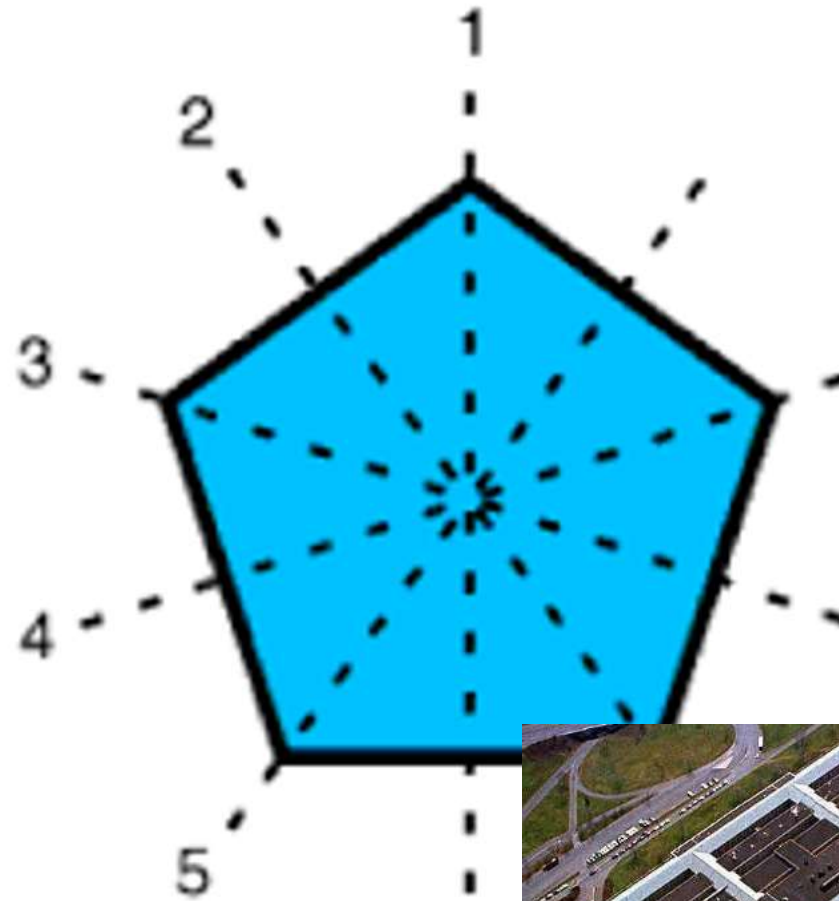


When we think of maths, we often jump straight to thinking about formal calculations, number facts and famous scientists and mathematicians.



Maths = spotting, understanding and using patterns

However, when you define maths more broadly as the spotting, understanding and using of patterns to influence our lives, you can see it more clearly in a wider context.

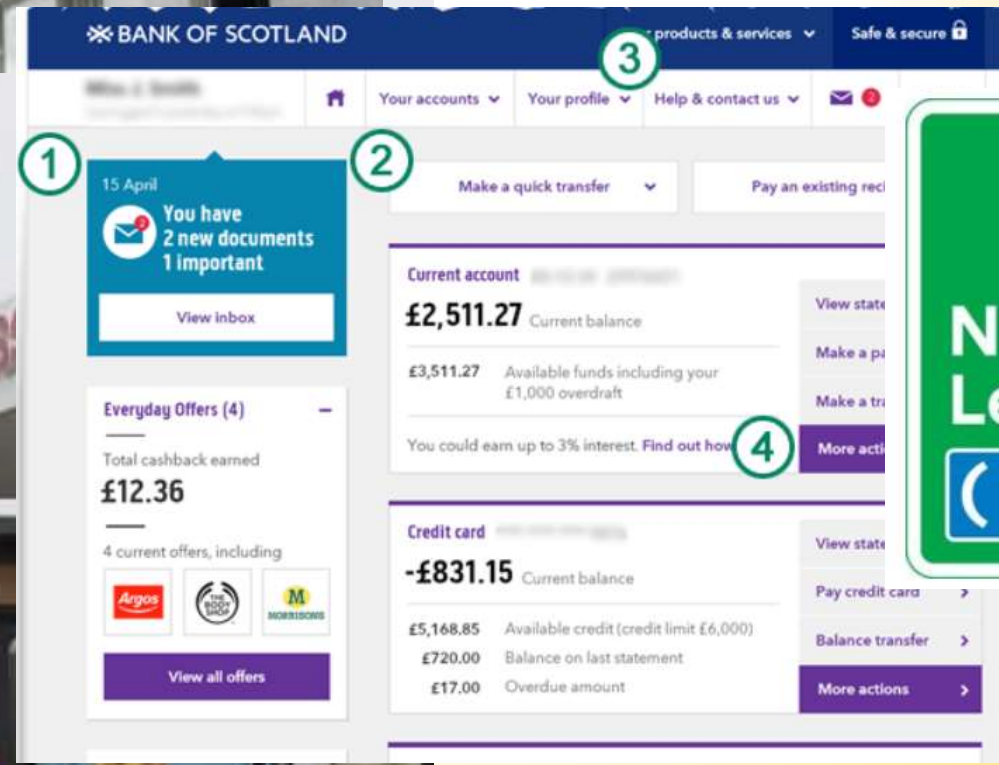


Throughout history, humans have used maths to make sense of the natural world and develop our own environment.





Our children are growing up in a highly technical world where we need a good standard of maths to make sense of our daily lives and get the best out of them.





‘Kevin Devlin argues that being good at maths is simply part of being human, just the same as being human means that we are good at speaking our native language. The gene for language development and mathematical development is the same. Yet for some reason we all expect to speak English but we do not all expect to develop mathematical expertise.’

Jo Boaler, 2015

3 core aspects of maths at JC

- Attitude & atmosphere
- Fluency
- Reasoning



Attitude & atmosphere

Setting the right attitude and atmosphere is essential to get maths right at primary school.

- How we think about maths: growth mindset
- Importance of talk and discussion
- Whole class maths and flexible groupings



Ask your uncle...I
can't write.

What does
r-e-l-i-e-f spell? I
don't know.

None of us are
any good at
reading books
in this family,
love. Sorry.

Have you ever heard anyone say any of these things when asked to help with spelling or reading homework? Probably not.

Nan says she was
rubbish at English
at school too.

Ask your uncle...I
can't do numbers.

What's 64 add 38?
I don't know.

None of us are
any good at
maths in this
family, love.
Sorry.

But when you transfer these statements into a maths context, you can see that it's become acceptable to say 'I can't do maths'. At John Clifford, we believe that every child can succeed and make progress at maths.

Nan says she was
rubbish at maths
at school too.

Fluency

- Number facts
- Numbots & TT Rockstars

We provide all children from Reception to Year 6 at John Clifford School with an account for the Maths Circle sites Numbots.com and TTRS.com. These allow children to practice key number facts in a fun and secure online environment. Login details can be found on the maths page in your child's communication diary.

Just practicing for 5-10 minutes a few times a week can make a real difference to your child's confidence in maths. Awards are given weekly for Numbots and TTRS in Star Assembly.

Number fluency is essential for children to succeed in maths. Key number facts need to be learned and practiced regularly so that children can confidently and quickly recall the facts that they need to solve problems. For example, if you can't quickly recall $8 + 9 = 17$, you will struggle to solve a multi-digit column addition problem (such as $1938 + 18329$) that are will meet in Year 5 or 6.



Number Bonds (addition and subtraction facts) up to 20

+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

Number facts begin with counting up to five and then knowing number bonds up to five, such as $3 + 2 = 5$ and $5 - 3 = 2$. This then extends in Key Stage 1 to knowing number facts to 10, 20 and 100. The current national expectation is that all children will be fluent in the number bonds (addition and subtraction facts) up to 20 by the end of Year 2.

Times Tables (multiplication and division facts) up to 12 x 12

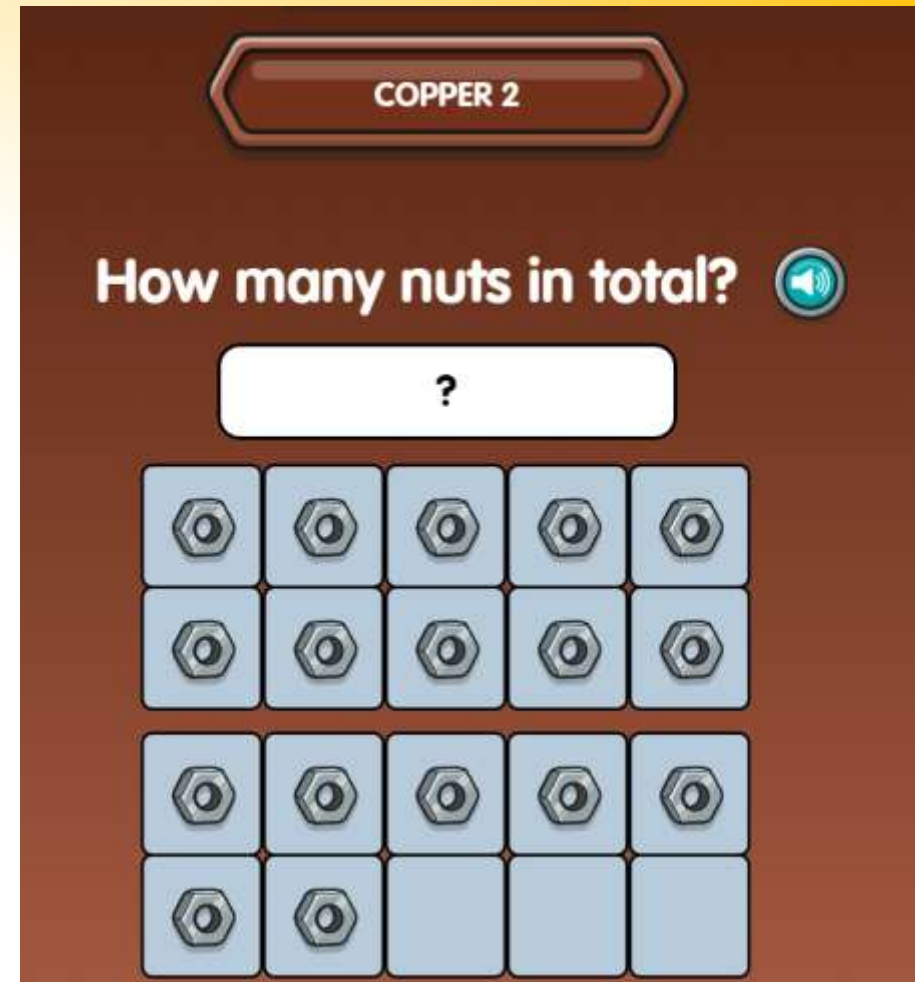
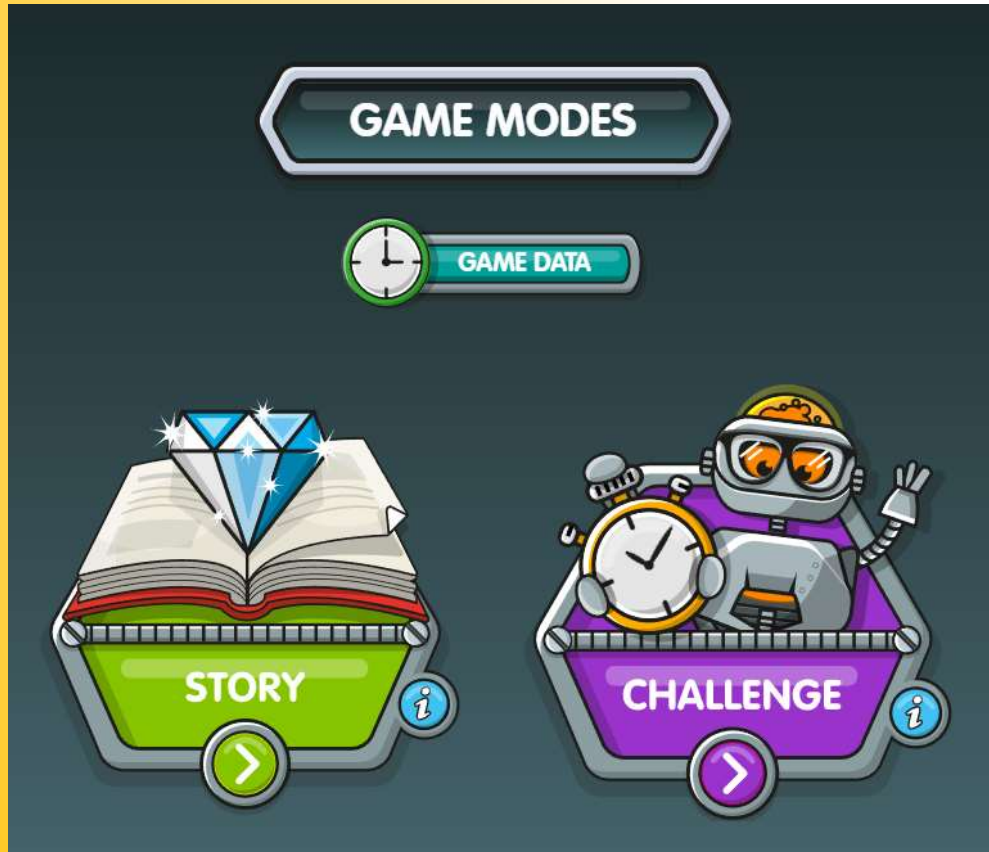
x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

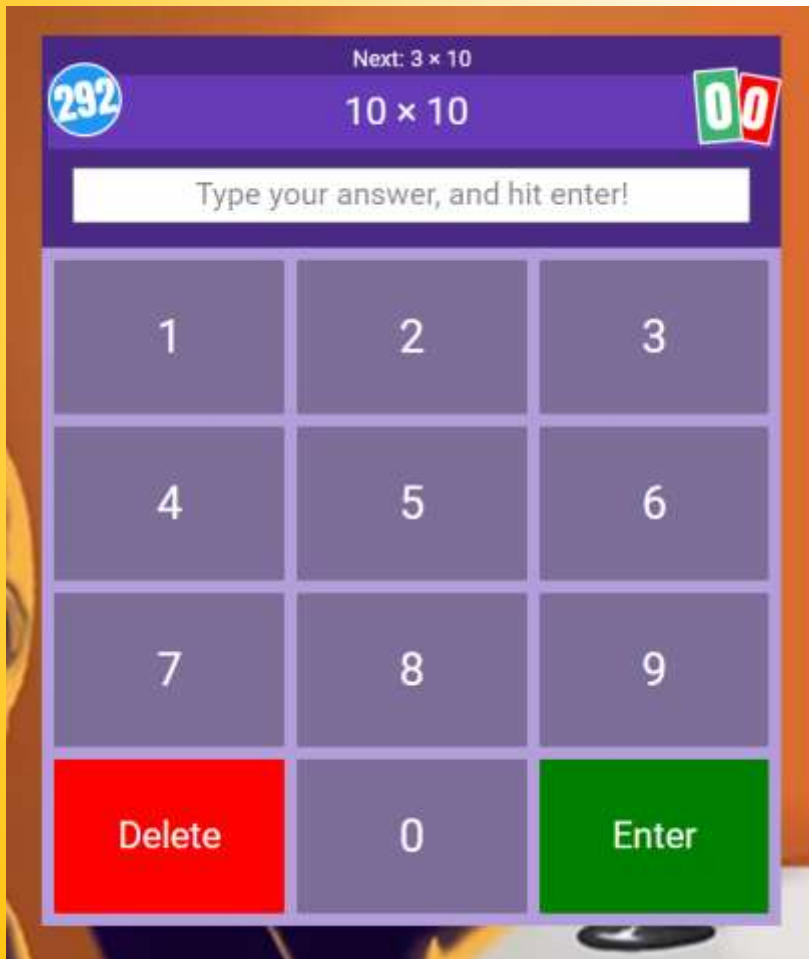
With addition and subtraction facts secured, children also learn the multiplication and division facts – the times tables up to 12 x 12 – and then how to apply them to scaled problems, such as $0.6 \times 9 = 5.4$ and $6 \times 90 = 540$. The current national curriculum expectations are that all children will be fluent in the times tables facts up to 12 x 12 by the end of Year 4, which is assessed in the Multiplication Tables Check in June each year.

The times tables are an essential building block of knowledge for the work that follows in Year 5 and 6, such as long multiplication and fraction calculation.

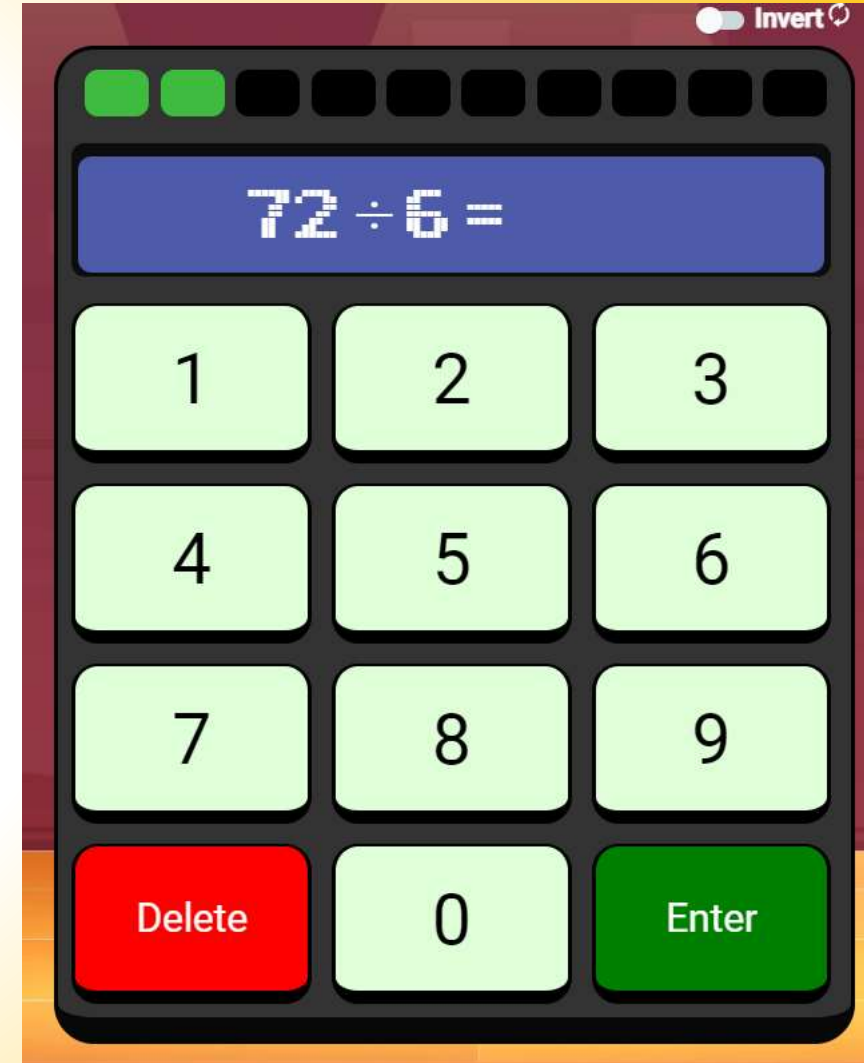
NUMBOTS

Numbots.com: this site focuses on number bonds up to 100. It is recommended for ages 5-7, but may be suitable for older and younger children depending on their level of understanding.





TTRockstars.com: this site focuses on times tables facts up to (and beyond) 12x12. It is recommended for ages 7-11, but may be suitable for older and younger children depending on their level of understanding.



Reasoning

- Can I talk about and explain my ideas about maths?

I think that
statement is true
because...

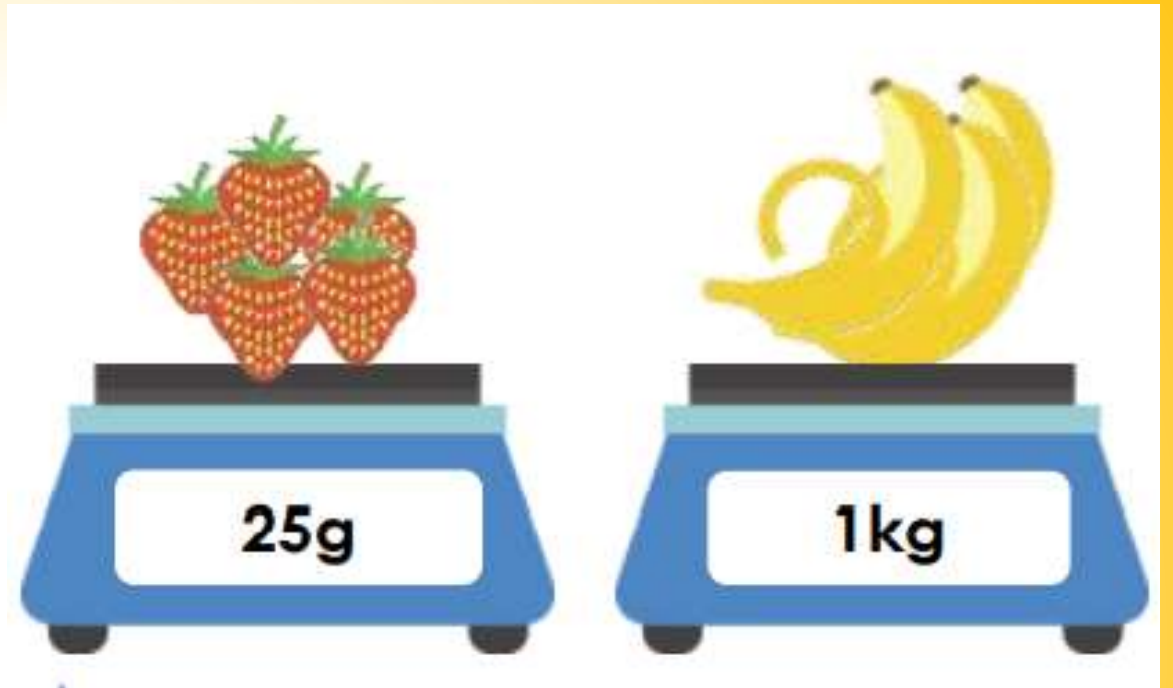
I think it might
be...because...

I don't agree with
that answer
because...

Sam has 55p.

Ben has 10p less than Sam.

Tick the coins that **Ben** has.



Which has a greater mass – the strawberries or the bananas?
Can you explain why?

These are the kind of reasoning problems that children will encounter in Year 2 and 3.

4. Julia is practising converting different units of measure.

She says,



If I convert millimetres to metres, I have to divide by 1,000 because a metre is a thousand times larger than a millimetre.

Is Julia correct?
Convince me.

These reasoning problems are from Year 5 and Year 6 and show the degree of knowledge and number fluency that children need at this level.

Here is a recipe for raspberry ice cream.

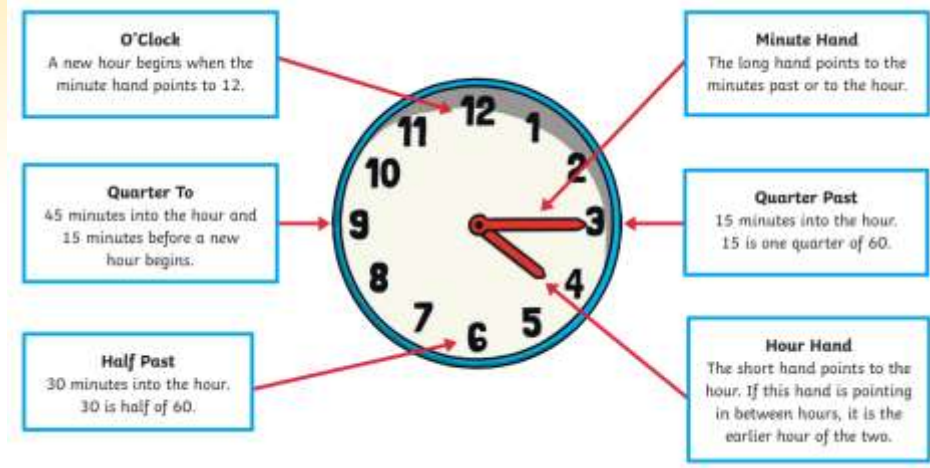
raspberry ice cream for 8 people
$\frac{1}{2}$ litre of cream
1kg raspberries
250g sugar



This recipe is for **8 people**.

Josie makes enough raspberry ice cream for **12 people**.

How much **cream** does she use?



How can I help at home?

- Talk to your children about maths in day to day life, for example if you are shopping or baking, learning to tell the time at home or catching the tram.
- Encourage and support your child to learn and practice number facts using Numbots and TT Rock Stars – ideally 5-10 minutes, a few times a week.
- If you are confident and wish to do so, practice calculation methods when children are learning them at school. Although it is easy to say 'It's all changed since I've been at school,' the standard formal column methods of addition, subtraction, short and long multiplication and division are all still in use. Ask your child's class teacher for more information on what your child is learning if necessary.



$$\begin{array}{r} 38 \\ + 93 \\ \hline 131 \\ \hline 1 \end{array}$$

