

maths fluency

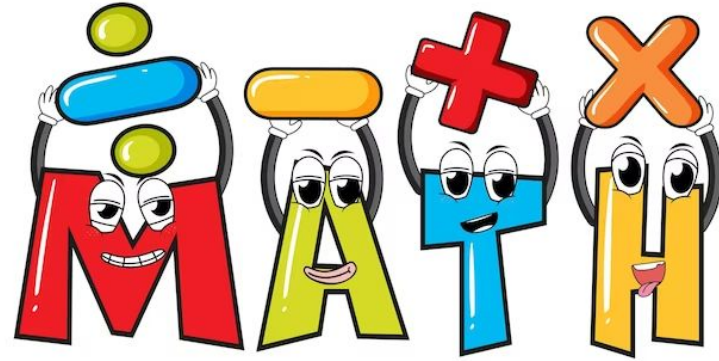
& supporting



At Bygrove we have...

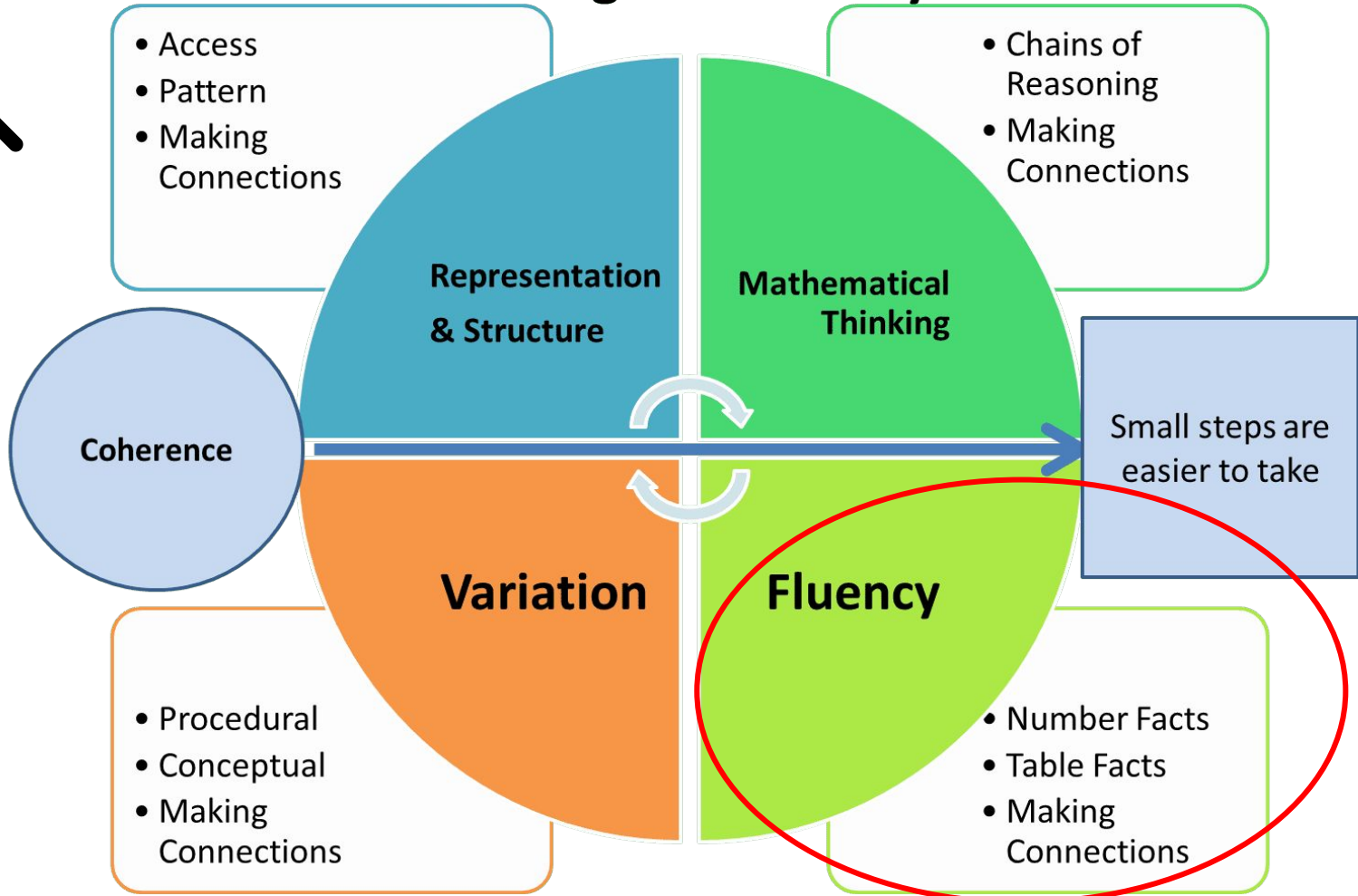
A Maths Mastery Curriculum

- High expectations for every child
- Few topics, greater depth
- Number sense and place value come first
- A research based curriculum
- Concrete, pictorial, abstract
- Problem solving is central – Answer, Prove, Explain
- Language and Communication lead to understanding
- Challenge is provided through an increased depth, rather than acceleration of content



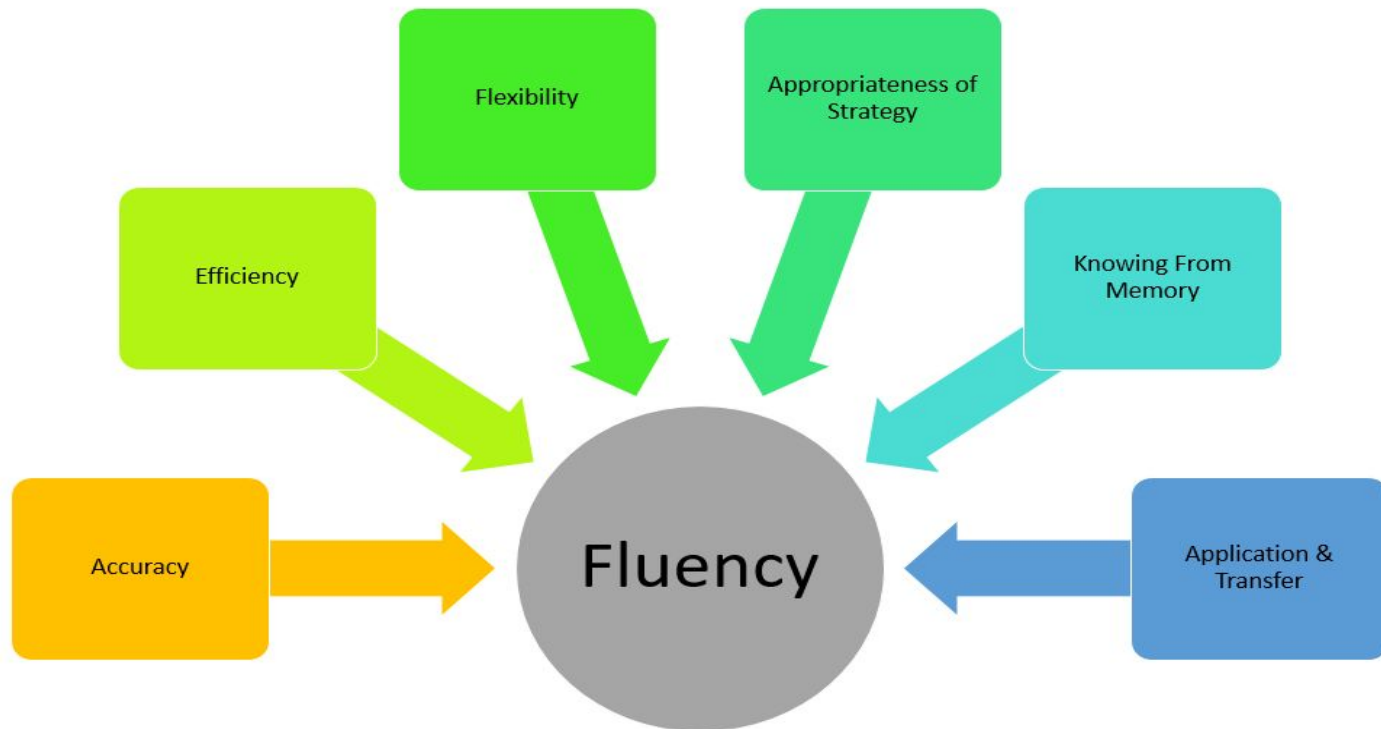


Teaching for Mastery



So, what is fluency?

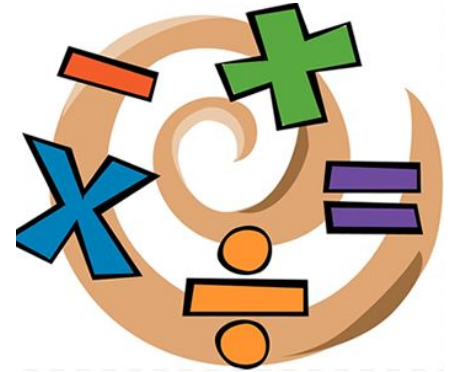
Fluency in maths is about **developing number sense** and being able to **choose the most appropriate method** for the task at hand (being able to apply a skill to different contexts.)



So, what is fluency?

There are three key elements to fluency:

- **Recall and automaticity:** the effortless recall of facts, such as number bonds within 10 and times tables facts, and understanding the relationship between these facts.
- **Procedural fluency:** being confident and accurate with using procedures and being able to select the most appropriate method for the task at hand.
- **Flexibility and adaptability:** the skill of moving between different contexts and recognising connections between them. For example, understanding the concept of $\frac{1}{4}$ in various situations, whether it's a fraction of a shape, a portion of time or a proportion of set of objects.



The National Curriculum states that pupils should become fluent in the fundamentals of mathematics **through varied and frequent practice**.

So, what is fluency?

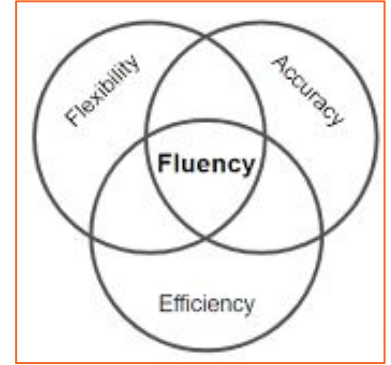
- Recalling the **basic facts in all four operations** (addition, subtraction, multiplication & division) & **APPLYING** these within procedures

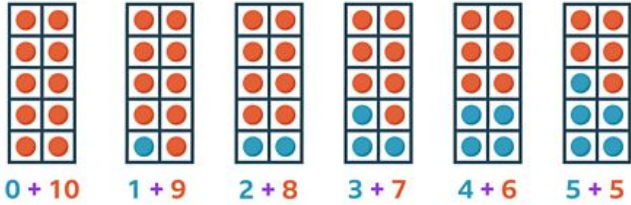
-Children should do the above with:

Accuracy - it should be correct,

Efficiency - recall facts quickly & effortlessly and with confidence

Flexibility - understand when to use certain facts and when to draw on other known facts



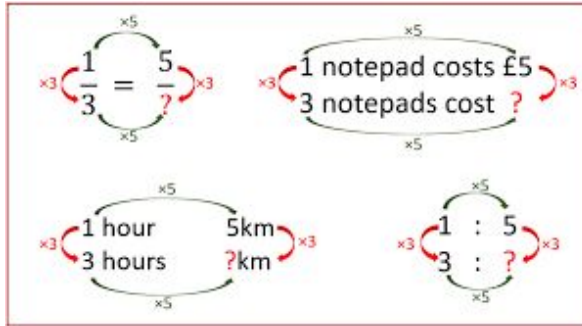


Key things to recall

- Number Bonds

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

- Times Tables



- Understanding connections

$3 \times 8 = 24$ so $30 \times 8 = 240$

Why is fluency important?

Research shows that fluency benefits children in their primary maths and beyond!

- It allows pupils to free up brain power or working memory to complete more complex math, such as word problems or multi-step equations.
- It supports children to confidently approach new math concept problems, data interpretation and mathematical reasoning.
- Multiplication fluency is also shown to impact success with fractions (KS2)
- Retrieval speed also plays a big part when children are preparing for SATs at the end of KS2 & later on in their GCSEs.



How can you
support with
building fluency
at home?



**5 STOP
TIPS**

How can you support with doing this at home?

1. Daily Practice Makes Progress!

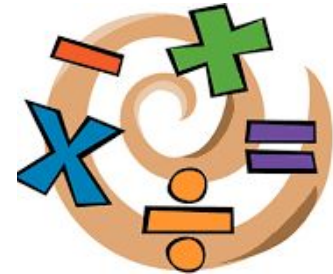
Even just 10-15 minutes a day can help students achieve mastery.

We build fluency at school during maths & sessions such as mastering number but even more practise is great!

Switch It Up!

Math fact practice doesn't have to look the same every day.

-Sing a math fact tune, get hands-on with math manipulatives, or jot down and journal about math facts.



Practicing
Math
Fluency
Skills

2. Develop Mental Math Skills

- Adding smaller number to larger numbers
- Chunking numbers
- Different ways to make ten
- Doubling and halving math facts
- Times tables!

Multiplication Table

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
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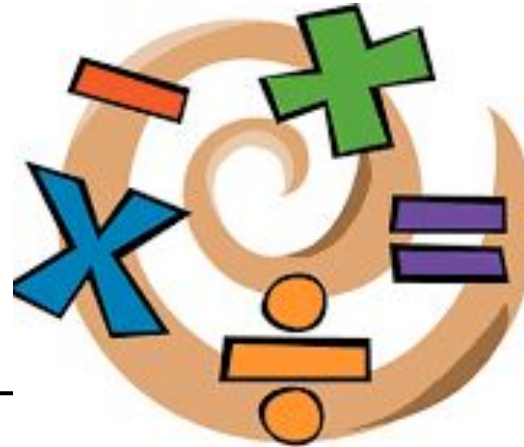
Practicing
Math
Fluency
Skills

3. Get Talking About Maths

Let your children share their reasoning about how they solved a math problem or looked at a larger number in various ways.

For example, ask your child to think of five ways to form the number 54.

Compare their ideas with yours!



Practicing
Math
Fluency
Skills

4. Make Math Facts Fun With Games

These can be both online and offline.

B	I	N	G	O
9+7	3+6	6+7	5+6	3-3
4+2	8-8	5+2	3+7	1+10
2+2	6+3	10-9	7-4	1+7
10-5	2+8	9+9	5+5	8+4
6-6	9+10	9-4	3+8	2+1

Sort these numbers into the 7 and 12 times tables.

28	144	24	96	72
56	42	63		

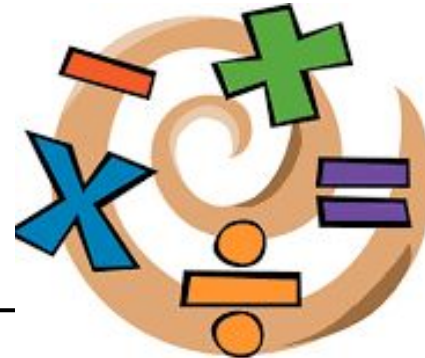
7 × table

12 × table

Offline games, like math bingo or sorting products of times tables

B	I	N	G	O
6	23	31	55	65
5	19	34	50	63
8	29	Free!	48	68
15	30	39	49	67
9	28	40	47	75

Many online programs, like Mathletics, allow students to practice and play at their own pace.



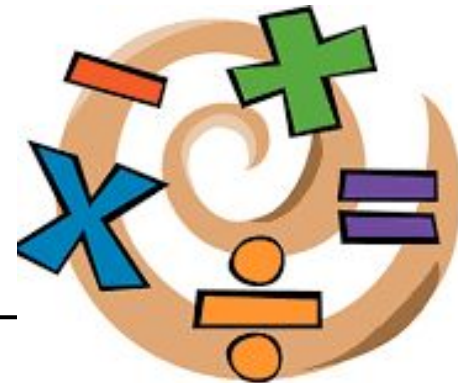
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5. Track Progress and Celebrate Success

Get your children involved in tracking their own journeys.

Don't forget to celebrate **growth** and **achievements!**

Certificates and points on Mathletics are always something to be proud of!



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