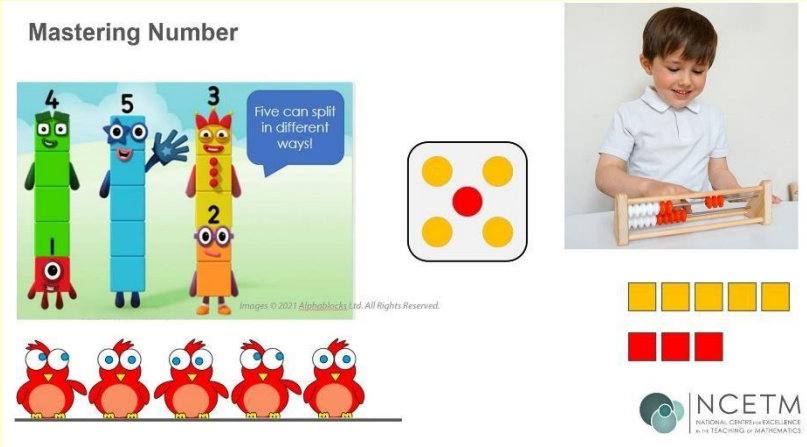
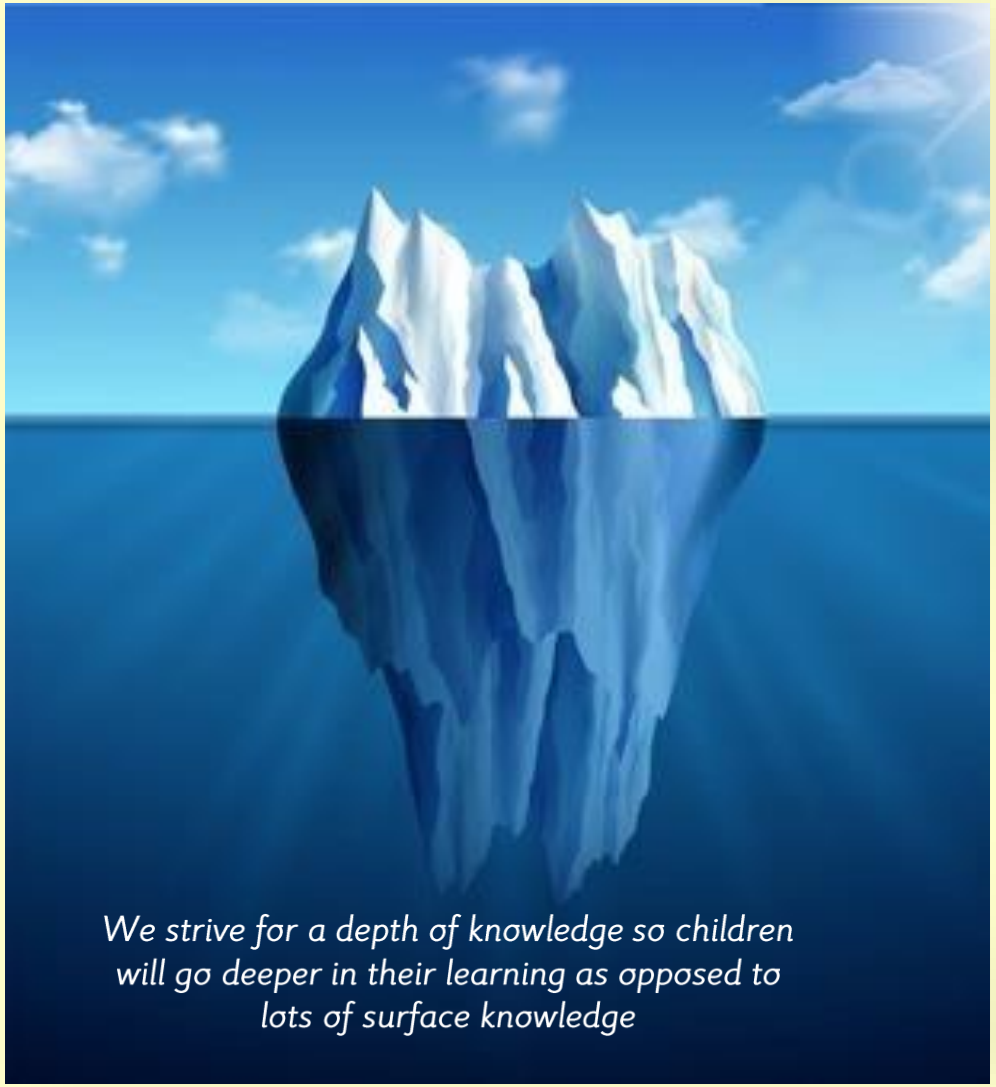
Mathematics (KS1)Parent & Carer workshop

- Teaching sequence
- Mastering Number
- Multiplication



Maths Teaching At Deansfield

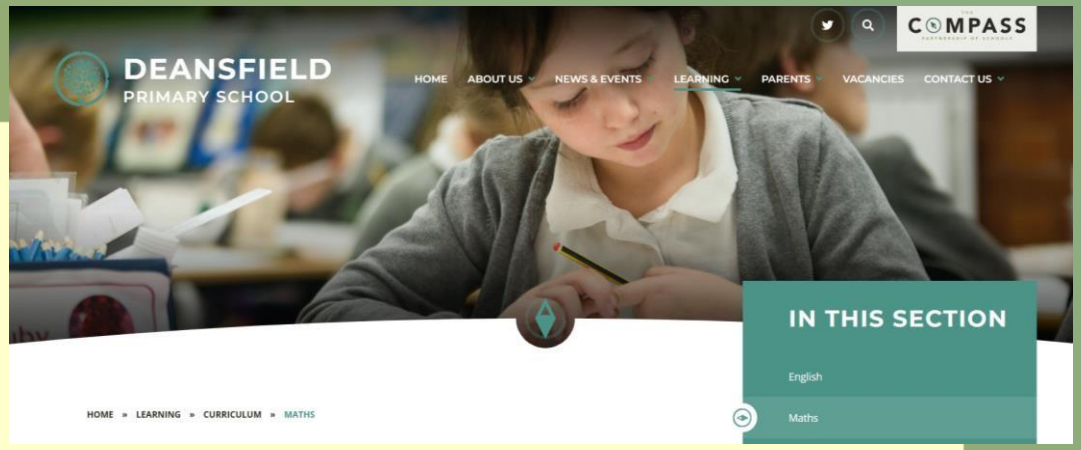


Our mission:

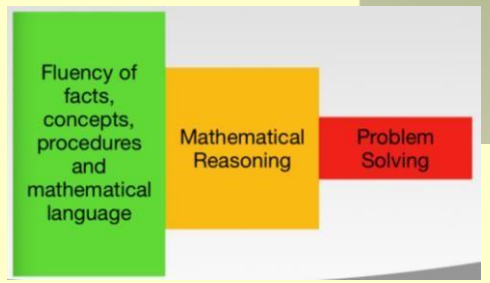
- *All children to love and enjoy Maths*
- *Creating passionate Mathematicians*
- *All children to be independent problem-solvers who are fluent in number with the ability to reason their thinking*
- *Resilient learners who can apply their skills across the curriculum*

Maths at Deansfield

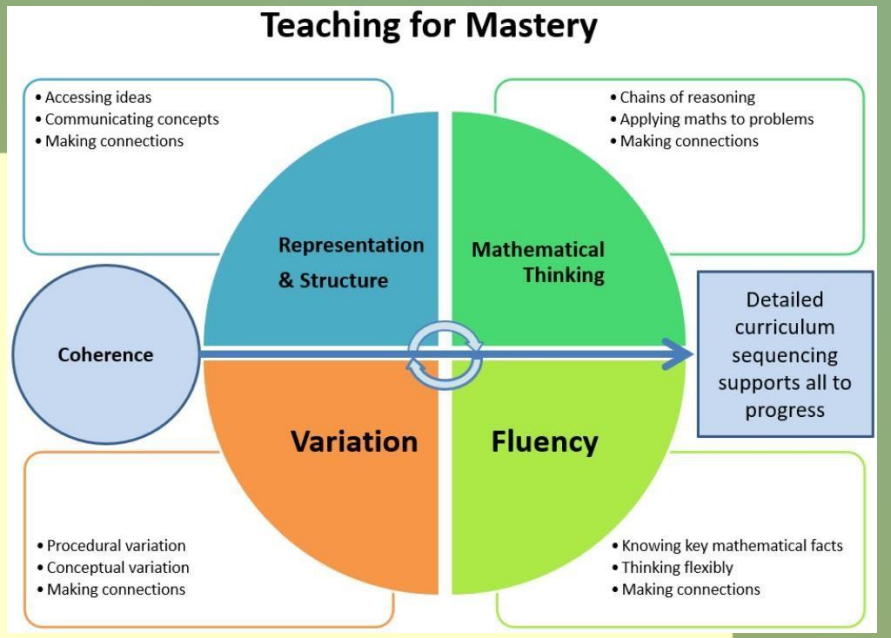
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number **Place value** (within 10) FREE TRIAL VIEW					Number **Addition and subtraction** (within 10) VIEW					Geometry **Shape** VIEW	Consolidation
Spring term	Number **Place value** (within 20) VIEW			Number **Addition and subtraction** (within 20) VIEW		Number **Place value** (within 50) VIEW			Measurement **Length and height** VIEW		Measurement **Mass and volume** VIEW	
Summer term	Number **Multiplication and division** VIEW			Number **Fractions** VIEW		Geometry **Position and direction** VIEW	Number **Place value** (within 100) VIEW		Measurement **Money** VIEW	Measurement **Time** VIEW		Consolidation



- **Step 1** Count within 20
- **Step 2** Understand 10
- **Step 3** Understand 11, 12 and 13
- **Step 4** Understand 14, 15 and 16
- **Step 5** Understand 17, 18 and 19
- **Step 6** Understand 20
- **Step 7** 1 more and 1 less
- **Step 8** The number line to 20
- **Step 9** Use a number line to 20
- **Step 10** Estimate on a number line to 20
- **Step 11** Compare numbers to 20
- **Step 12** Order numbers to 20
- End of block assessment (version B)



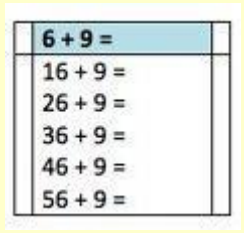
Maths Teaching At Deansfield

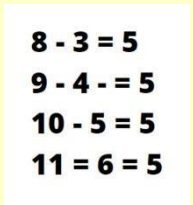


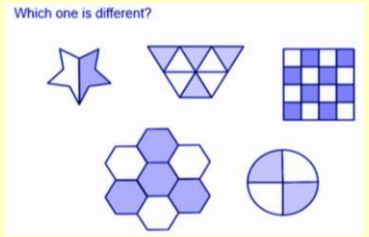
NOVICE

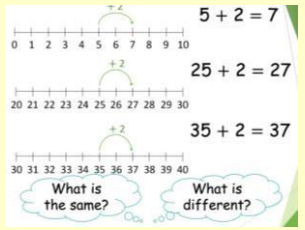
- *Recap prior knowledge*
- *New information in small steps that builds on prior knowledge*
- *Manipulatives to unlock Mathematical Structures*
- *Stem sentences to give children the ability to articulate their learning*
- *Variation*
- *Opportunities for children to make connections*
- *Reasoning and Problem-solving to allow for Metacognitive skills to be applied*

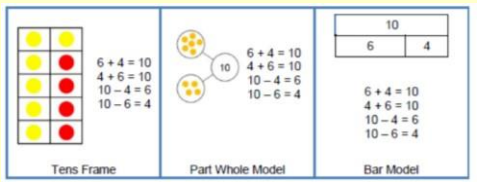
EXPERT

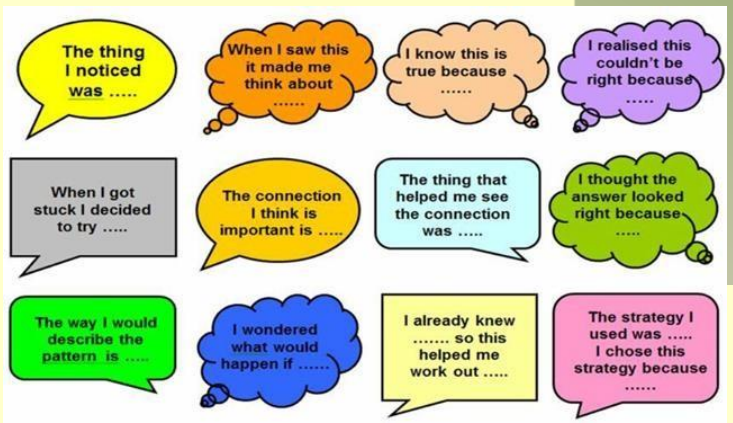


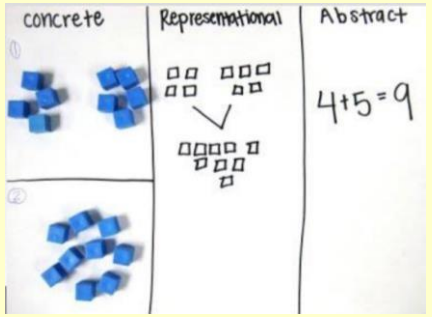




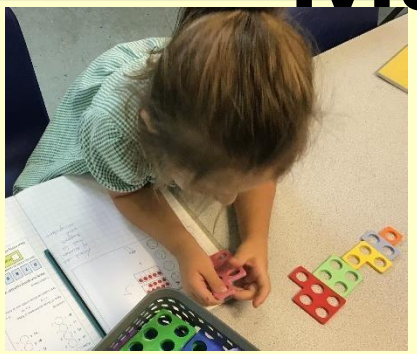
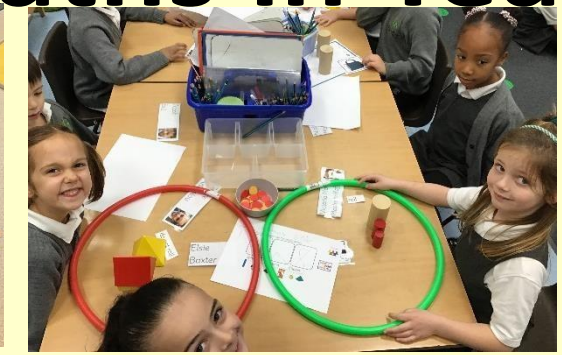




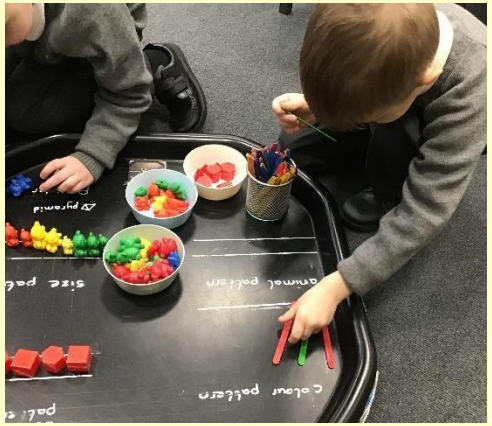


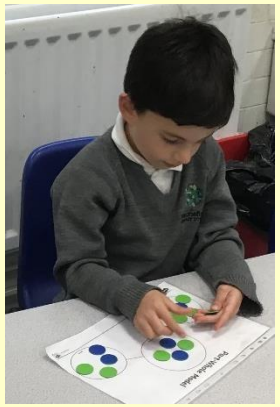


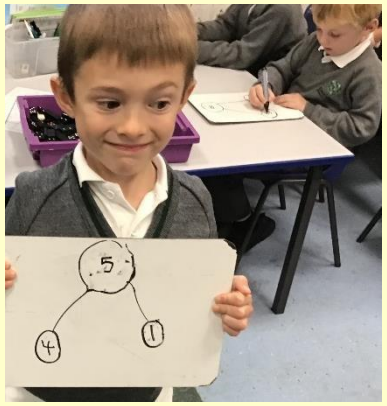
Maths in Year 1

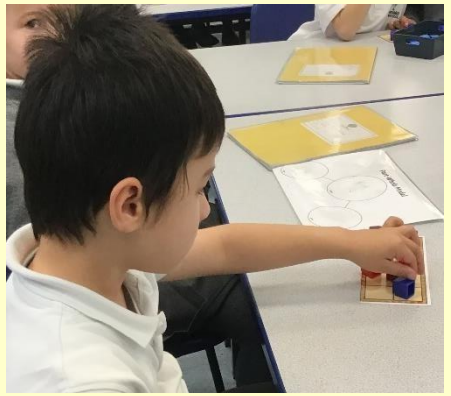






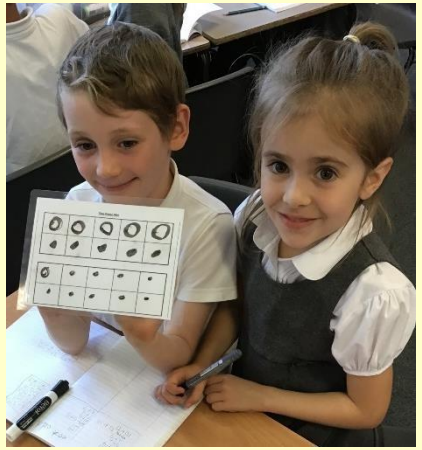



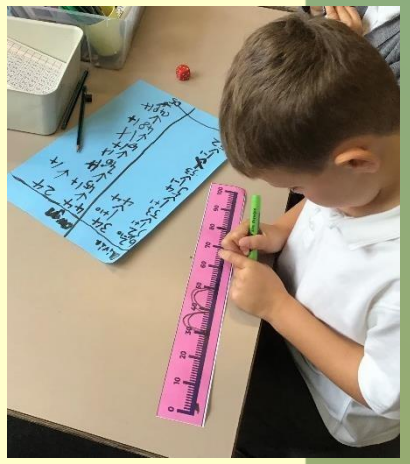


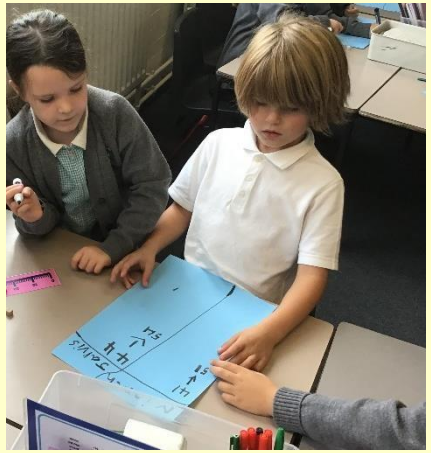



Maths in Year 2

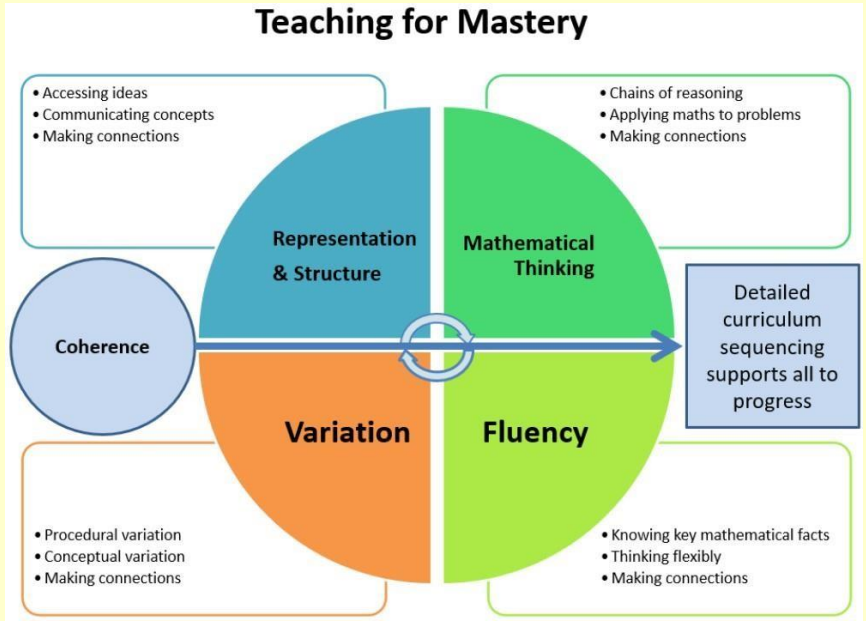


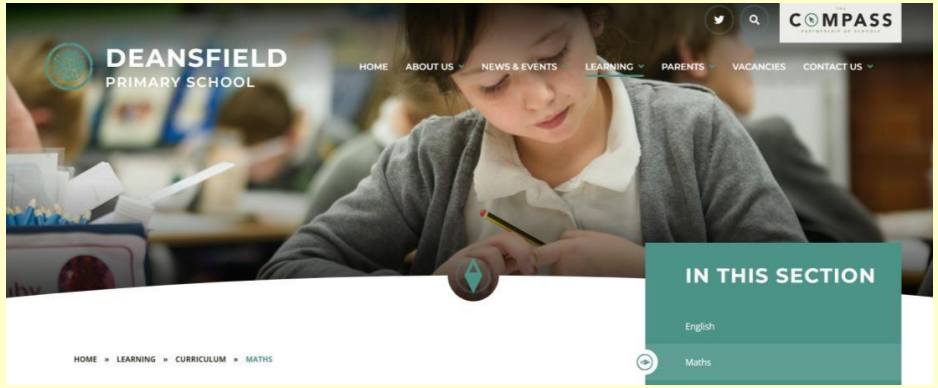





Deansfield Website

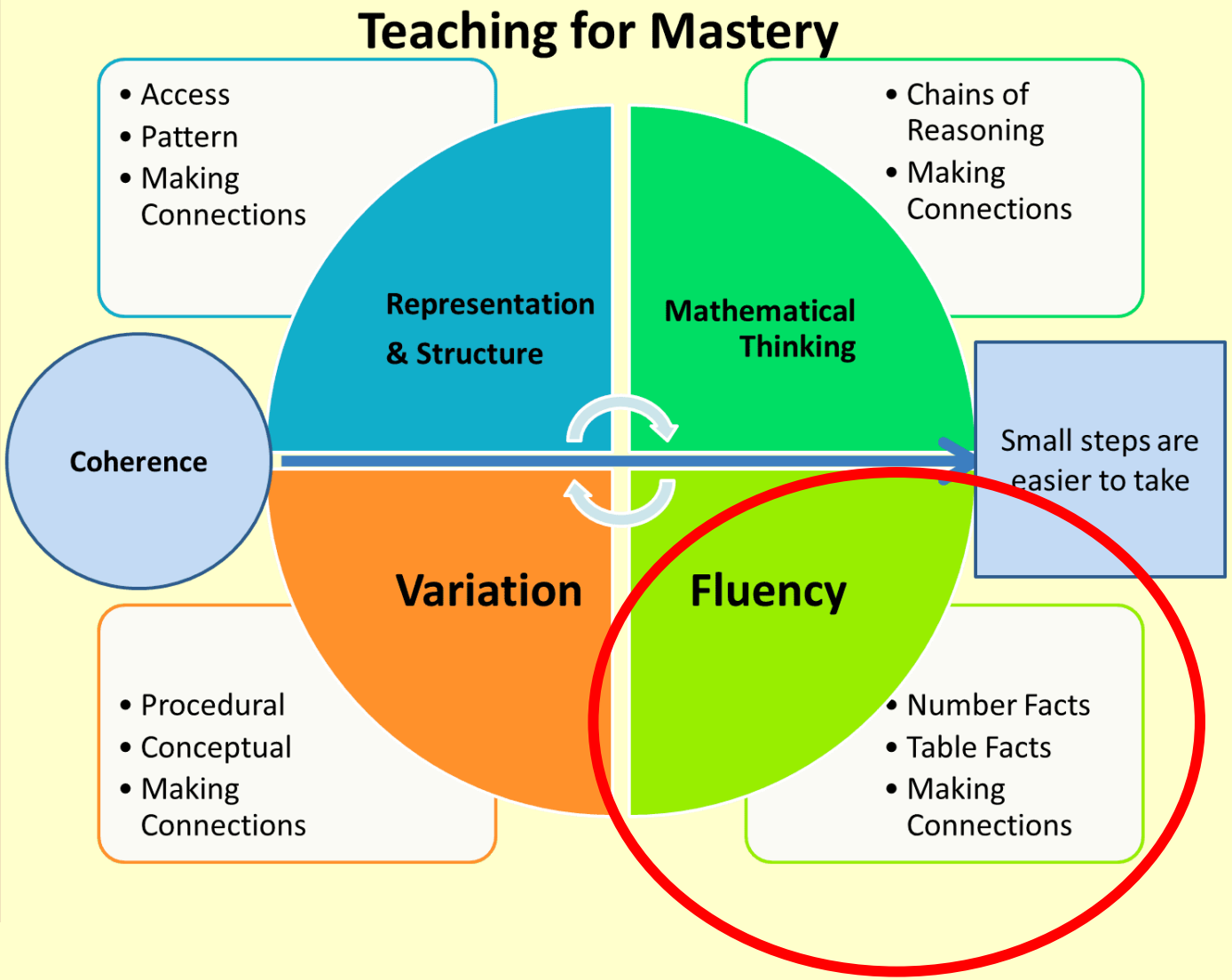




This White Rose calculation policy guides shows you an overview of the different models and images that support the teaching of different concepts within each year group. You can see the progression throughout the school.

+ Deansfield Primary School - Maths (compassps.uk)

Maths Mastery



Achievable for all

Deep and sustainable learning

The ability to build on something that has already been sufficiently mastered

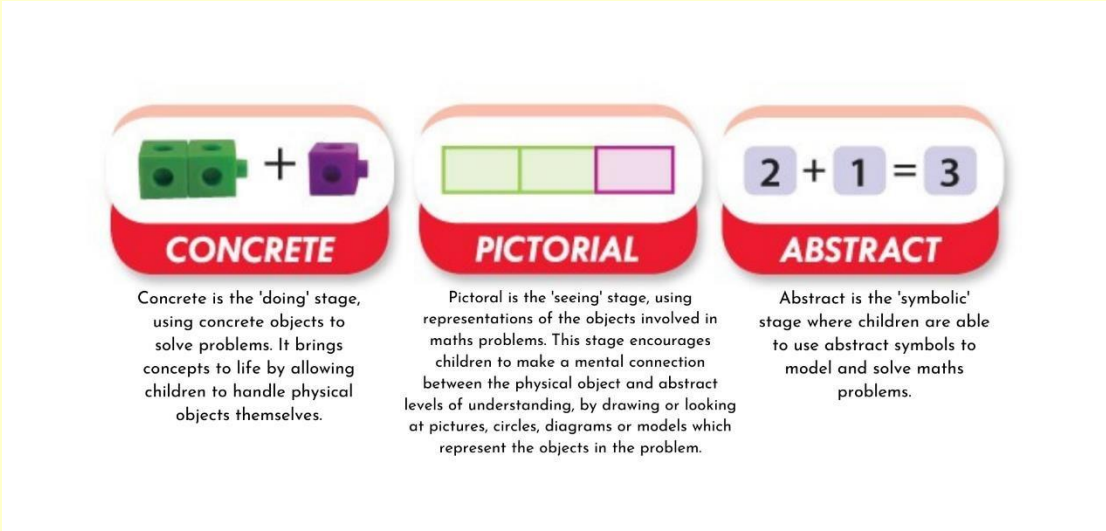
The ability to reason about a concept and make connections

The role and purpose of mastering number

- All children will:
  - Develop good number sense
  - Have automaticity in additive facts

What is mastering number?

teaching four short sessions each week, in addition to the daily maths lesson, aimed at developing children's fluency and flexibility with number



Mastering Number

Year 1 Session

Clip 1:
Making 7 on the
top row of the rekenrek

Mastering Number 2021/22

NCETM

NATIONAL CENTRE for EXCELLENCE in the TEACHING of MATHEMATICS

Mastering Number

Year 2 Session

Clip 2:
Visualising the rekenrek

Mastering Number 2021/22

NCETM

NATIONAL CENTRE for EXCELLENCE in the TEACHING of MATHEMATICS

Mastering Number

Year 2 Session

Clip 3:
Exploring equations
with missing parts

Mastering Number 2021/22

NCETM

The importance of mastering number

Whilst some progress to use their knowledge in a flexible and powerful way, **others seek security in counting procedures** which work promisingly in simple tasks but fail to generalise when greater sophistication is required.

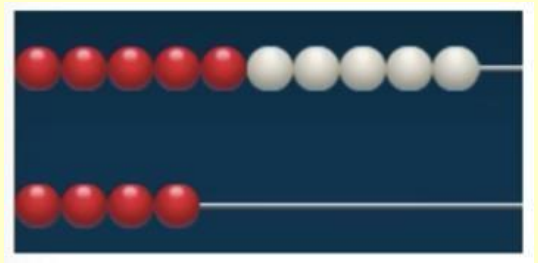
Gray, E.M. and Tall, D.O., 1994. Duality, ambiguity, and flexibility: A "proceptual" view of simple arithmetic. *Journal for research in Mathematics Education*, *25*(2), pp.116-140.

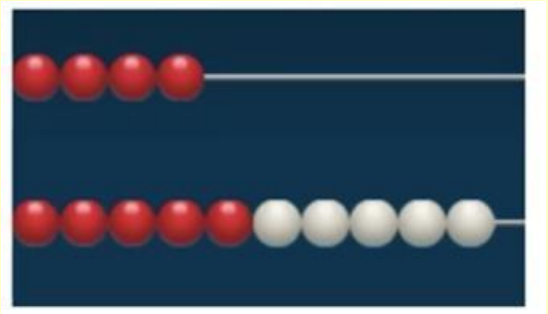
+ So... don't count, but what do you do instead?

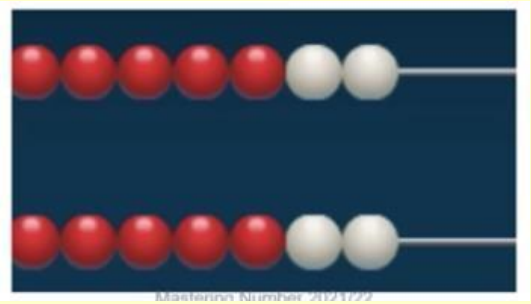
Gaining 'automaticity'

+ Automaticity with facts is important because it frees the mind to think about concepts
+ The automatic retrieval of basic maths facts is critical to solving complex problems, because complex problems have simpler problems embedded in them

'Seeing' the maths



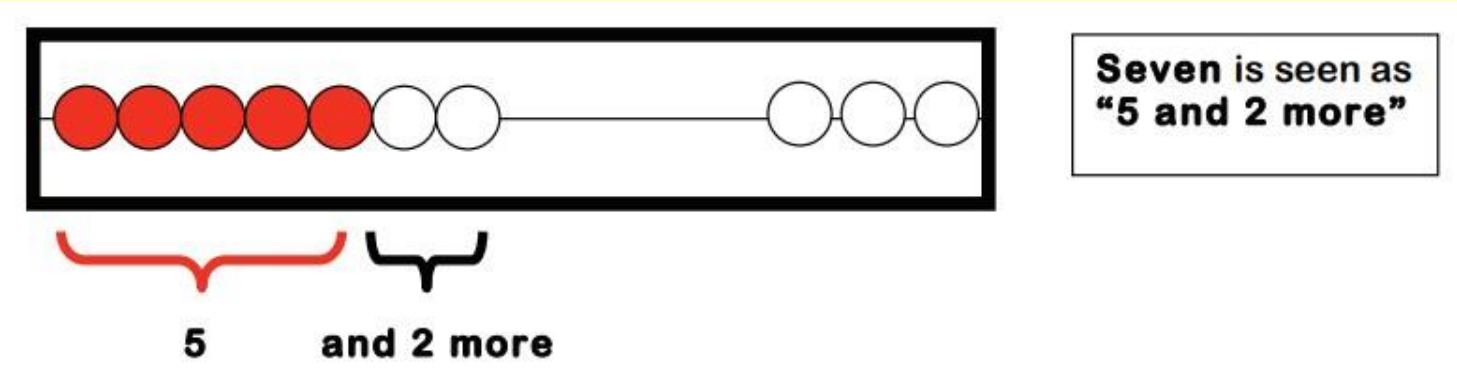




- Make 14
  - Place value: 'Think of the 10 first'

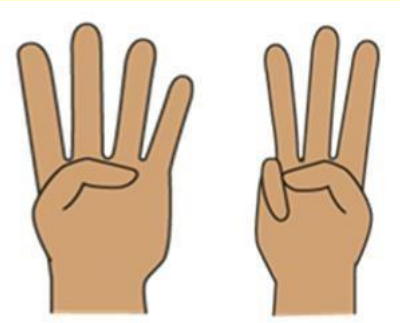
- Representations used in learning expose the mathematical structure that is being taught.

Drawing attention - What do you see?



- All children need to focus on the same mathematical structure as this will impact on future learning
- A stem sentence describes the representation and helps the students move to working in the abstract

Deepening understanding



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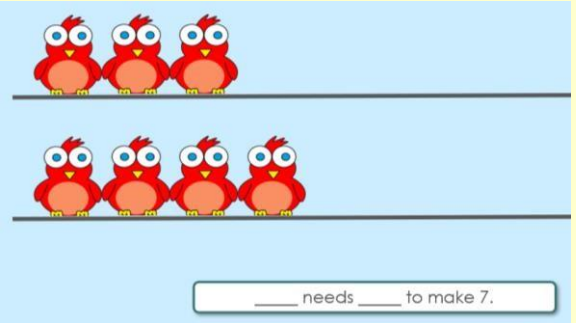
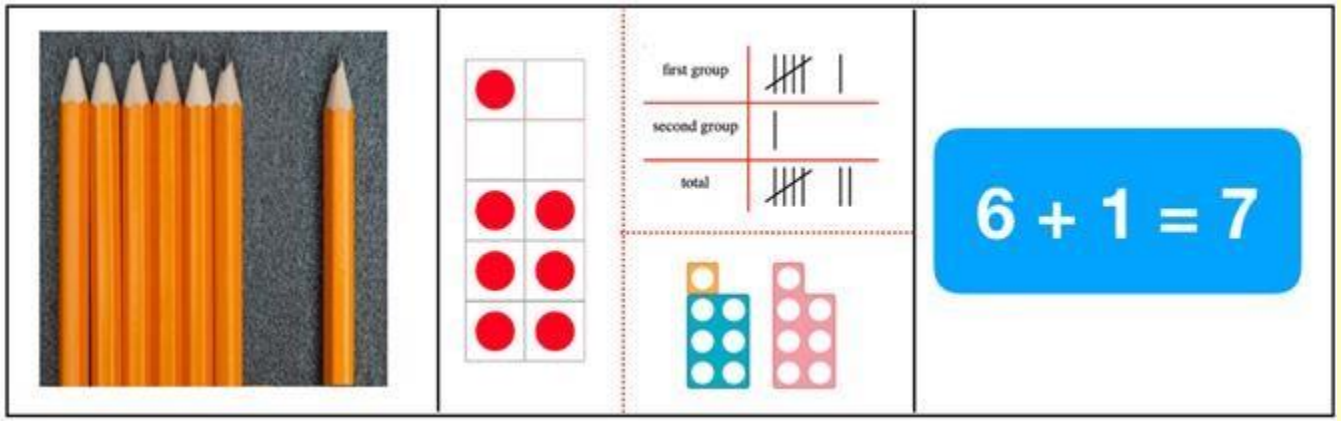
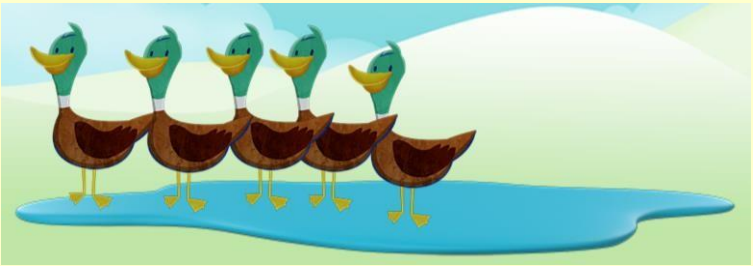


connection building





Applying knowledge

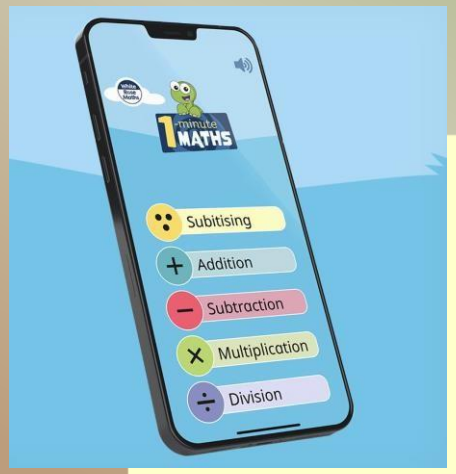
making sense of the **relationships** between the manipulative and the abstract concept

Small steps– KS1 Autumn Overview

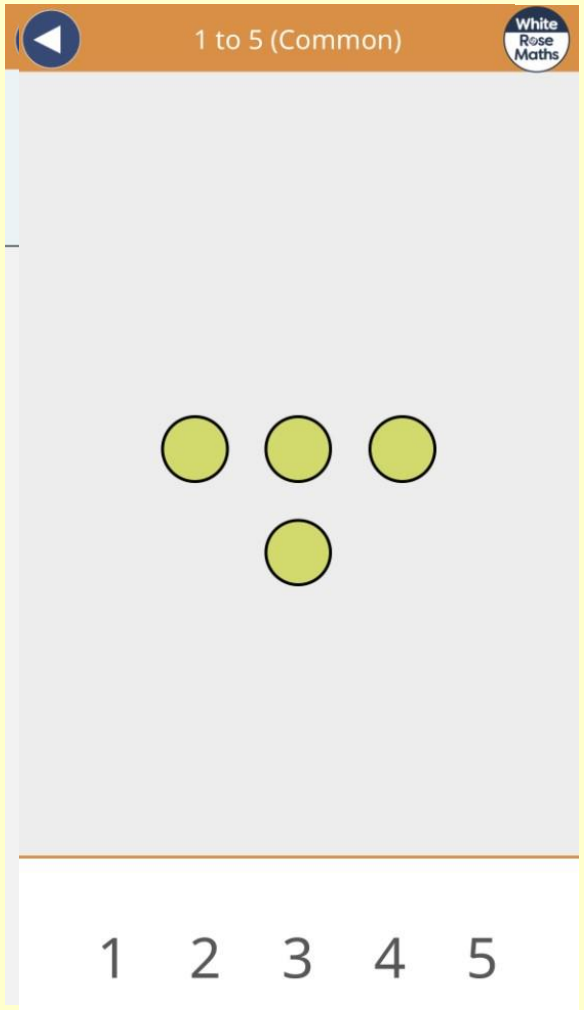
Spring 1

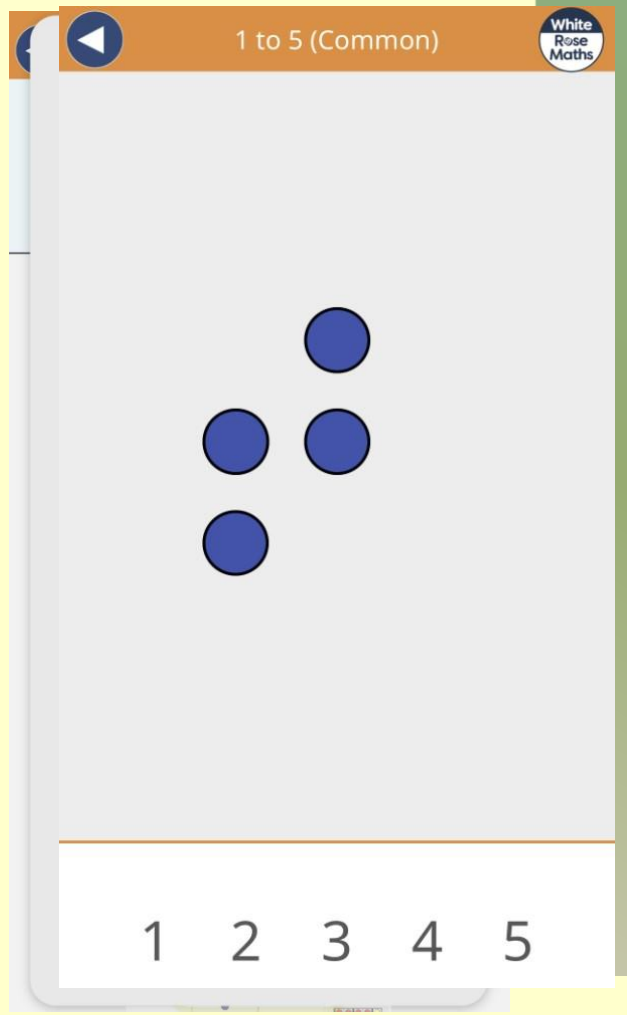
Spring 1	Week 12	Week 13	Week 14	Week 15	Week 16
Year 1 Set 3	**Composition**	**Composition**	**Composition**	**Composition**	**Composition**
	Focus on the composition of 7 Use the Hungarian number pattern and the rekenrek to find all the ways that 7 can be composed	Focus on the composition of 9 Focus on 3-by-3 grid and the rekenrek to find all the ways that 9 can be composed	Recap odd and even numbers by looking at their 'shape' Explore how odd numbers can be composed of 1 odd part and 1 even part, and even numbers can be composed of 2 odd parts or 2 even parts	Explore the concept of part-part-whole, seeing that numbers can be partitioned into parts Use the language of 'whole', 'split' and 'part' alongside the part-part-whole diagram	Continue to explore how numbers can be partitioned Introduce systematic approach to partitioning Represent ways to partition numbers in a 'number house'
Year 2 Set 3	**Number facts and arithmetic**	**Composition**	**Number facts and arithmetic**	**Number facts and arithmetic**	**Number facts and arithmetic**
	Focus on doubling numbers to 10, using the '5 and a bit' structure to double 6, 7, 8 and 9	Focus on the composition of 20 Use known facts within 10 to find missing parts of 20 when the known part is greater than 10	Apply knowledge of facts within 10 to addition and subtraction within 20 WITHIN the 10s boundary	Use knowledge of doubles to calculate near doubles See that near doubles are adjacent numbers See that the sum in a near double is odd	Develop understanding of near doubles Identify different strategies for near doubles, doubling the smaller addend and adding 1 or the larger addend and subtracting 1

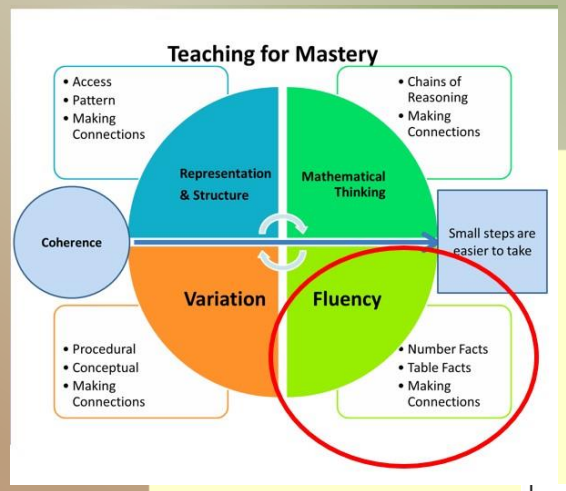
How to support at home

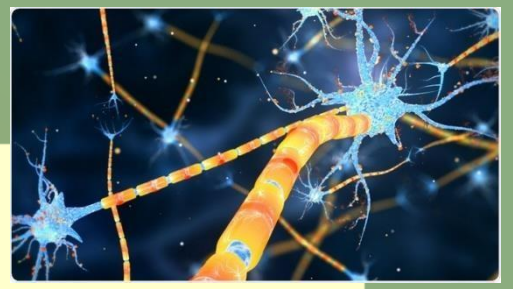


- Subitise
- Number facts
- 'see' the maths
- Encourage strategies that reduce the need for counting









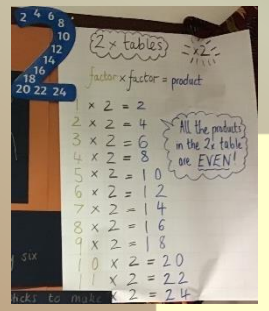
Multiplication

Automated Thinking!

Focus on **ONE times table each half term** – with opportunities built in to also practise those learnt previously

YEAR	First half term	Second half term	Third half term	Fourth half term	Fifth half term	Sixth half term
Year 1	Experience of counting in 1s, 2s, 5, 10s					
Year 2	1×	(1×) 2×	5×	(5×)10×	0× and revision	revision
Year 3	(2×) 4 ×	(4×) 8 ×	3×	(3×) 6×	(6×) 12×	revision

FACTOR TIMES FACTOR EQUALS PRODUCT!



'Being fluent'

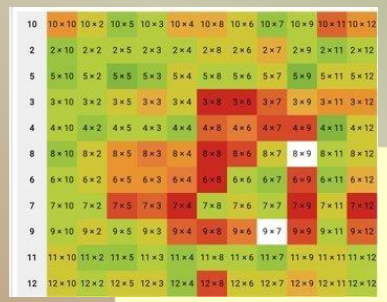
Quick and accurate recall of all multiplication facts up to 12 x 12 is important in order to free working memory, being able to make decisions about when to use this knowledge to solve certain problems.

However, if a child only knows these facts as an unconnected collection of memorised phrases and does not know:

- That 8 x 6 is the same as 6 x 8 or twice 4 x6 or 12 less than 10 x 8; or
- Does not know the connection between 6 x 8 and 16 x 8 or 6 x 80 or 0.6 x 8; or
- When faced with a problem of finding how many books are in a bookcase with 8 shelves and 6 books on each shelf, does not know what mathematics to use

...

then they have not obtained fluency of mastery



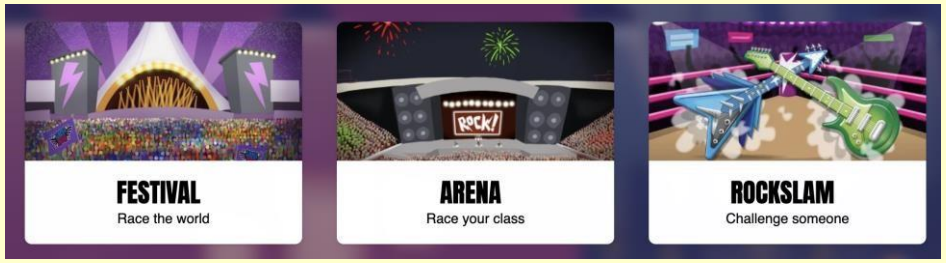
Times Table Rock Stars is an exciting game which helps children to learn and practise their times tables.

Through a “little and often” approach, children secure their times table knowledge whilst having fun!

We recommend approximately 5 minutes practice a day, 4 or 5 times a week.

You can download the app from the app store or play on the Times Table Rock Stars game on their website.

Also, make clear conceptual links to the real world!



We recommend a “little and often” approach; 5 minutes practice a day, 4 or 5 times a week is a good target

What are the different Game Modes?

Single Player	
Jamming 4 or 8 coins/correct answer	The only game mode without a timer, players chose the table and operation (× or ÷ or both) they want to practise. Answer 10, 20 or 30 questions.
Gig 10 coins per correct answer	Gig games last 5 minutes and contain up to 100 questions, which come in ‘waves’, starting with the 10s, then the 2s, 5s, 3s, 4s, 8s, 6s, 7s, 9s, 11s and 12s. Novices are not expected to get past the 5s. Gigs provide the child (and their teacher) with a simple measure of their current skills, which is why learners should concentrate fully for the whole Gig as they won’t get another try until next month.
Garage 10 coins per correct answer	Players are given a personalised set of 6 multiplication questions (and their matching division questions) in each round. The questions they get keep adjusting to provide the best fit for every learner’s needs. This is probably the best game made for improving their recall while they’re still learning.
Studio 1 coin per correct answer	Here your child earns their Rock Status, which is based on their Studio Speed. The faster they are the better their status. Studio Speed is the average of their most recent 10 Studio games. Suitable for confident players.

What are the different game modes?

Studio 1 coin per correct answer	Here your child earns their Rock Status, which is based on their Studio Speed. The faster they are the better their status. Studio Speed is the average of their most recent 10 Studio games. Suitable for confident players.
Soundcheck 5 coins per correct answer	Soundcheck games ask 25 multiplication questions (up to 12×12), allowing 6 seconds for each question. Suitable for confident players.
Multi Player	
Festival 1 coin per correct answer	Children compete against others from around the world, with their identities protected behind their rock names. Suitable for confident players.
Arena 1 coin per correct answer	Children race against other members of their class who are logged in and choose the same arena name at the same time. Arena games use the same smart question algorithm as Garage games.
Rock Slam 1 coin per correct answer	Players challenge their classmates or teachers to answer as many questions as they can in 60 seconds, setting a score for the challengee to beat. Pupils don't need to be online at the same time.
Tournaments	**Battle of the Bands** – groups of children within the same school (usually classes, year groups or teams) compete to have the highest *average* score per player. **Top of the Rocks** – like a Battle of the Bands *between* schools. The winning class or school is the one with the most correct answers per person. **Important:** Each correct answer (in any game mode) earns 1 point towards the team's total in addition to the coins earned. For example, in Garage games each correct answer is worth 1 point for the team and 10 coins for the player.

Times Table Rock Stars!

Learners with different needs	
How can I hide the timer?	Start a game and press ⚙ > Hide Practice Clock. You could also play a game in Jamming.
How can I increase the length of Garage games?	Single player > Garage > press the little arrow below "play solo" > choose 1, 2 or 3 minutes.
The tables are too hard	Make sure your child is playing in Garage or Arena game modes. If this does not resolve the issue, please speak to your child's teacher. Remember that Jamming mode allows the child to choose the tables themselves.
My child gets anxious	Try the three above plus: setting mini goals (e.g. complete 2 minutes today, get 1 more point in the next game, pass 1 level); having a break from online play (come back in a couple of days); and reminding them of Baz's words: "A good rock star stays chillaxed by accepting they make mistakes."
My child has visual impairments; what settings are available?	Head to the Profile page where you can: change the colour scheme; reduce the visual stimuli with Declutter mode; increase the font size or switch to a dyslexia-friendly font called Lexie. play.ttrockstars.com is also screen reader compatible.
Can I turn off division?	Yes in Jamming mode but not in the other games. The reason for that is that practising multiplication and division at the same time supports the recall of both and is the most successful approach. If your child is finding division confusing, please speak to their teacher about starting with the 10s only and for advice on how to help at home.

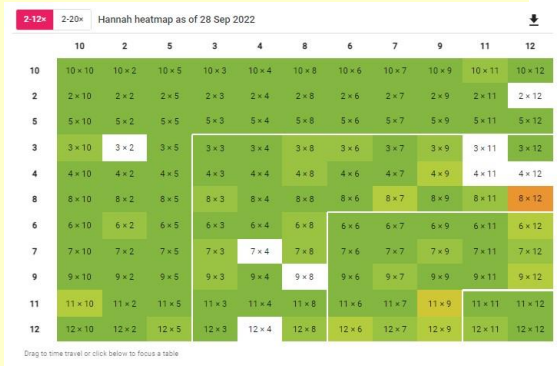
Checking your child's progress

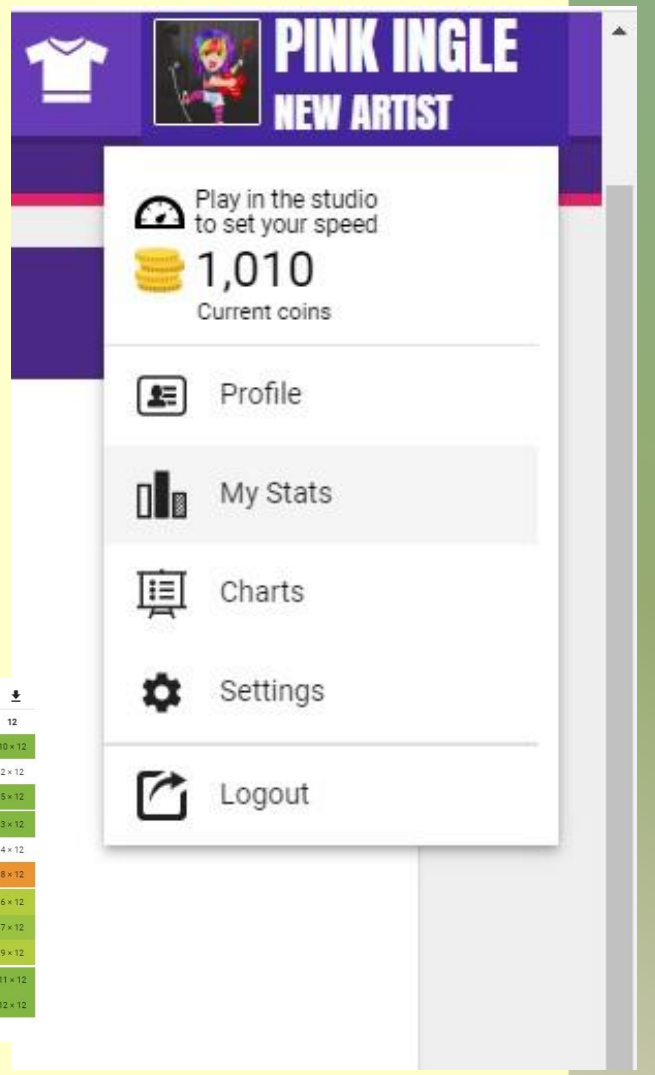
Checking your child's progress is easy:

When your child has logged in, select their avatar in the top right hand corner and then select the 'My Stats' option.

In the effort tab, you can see how many minutes the children have played.

Under fluency, you can see how quickly your child is able to answer each question and how confident they are with their individual times table knowledge.





The URL on the right will help show you this process in more detail ❼

https://www.youtube.com/watch?v=phxP5_OhOtk


Questions?