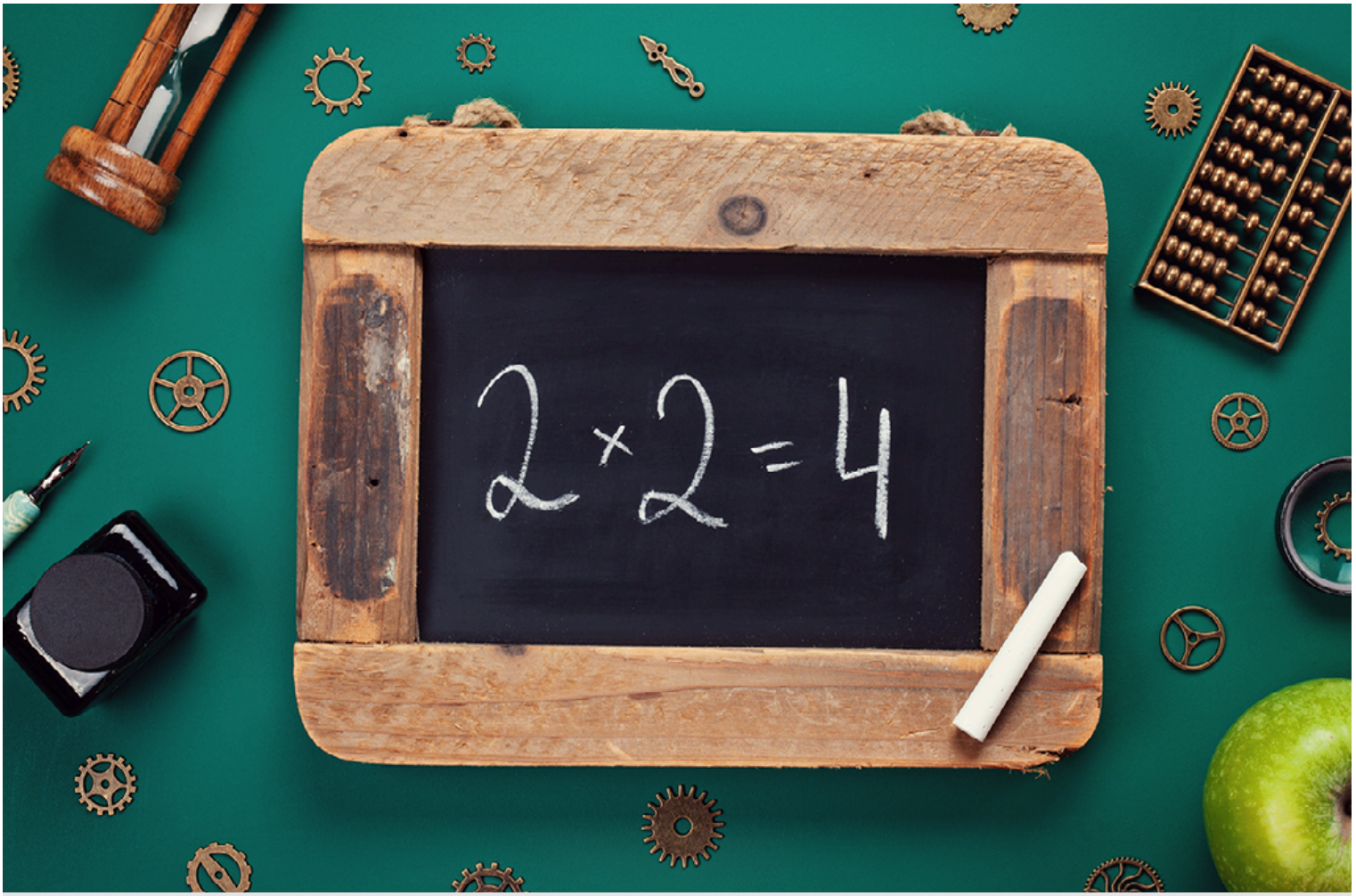
Times Tables Approach

West Meadows Primary School

Why do we learn times tables?



In primary education, knowing times tables is essential for quick mental arithmetic and tackling problems, as well as for many KS2 topics such as division, fractions, and percentages. As pupils move into secondary school, strong multiplication skills provide valuable support when beginning algebra, and are equally important in subjects like chemistry, physics, biology, and computing, all of which rely heavily on mathematical understanding.

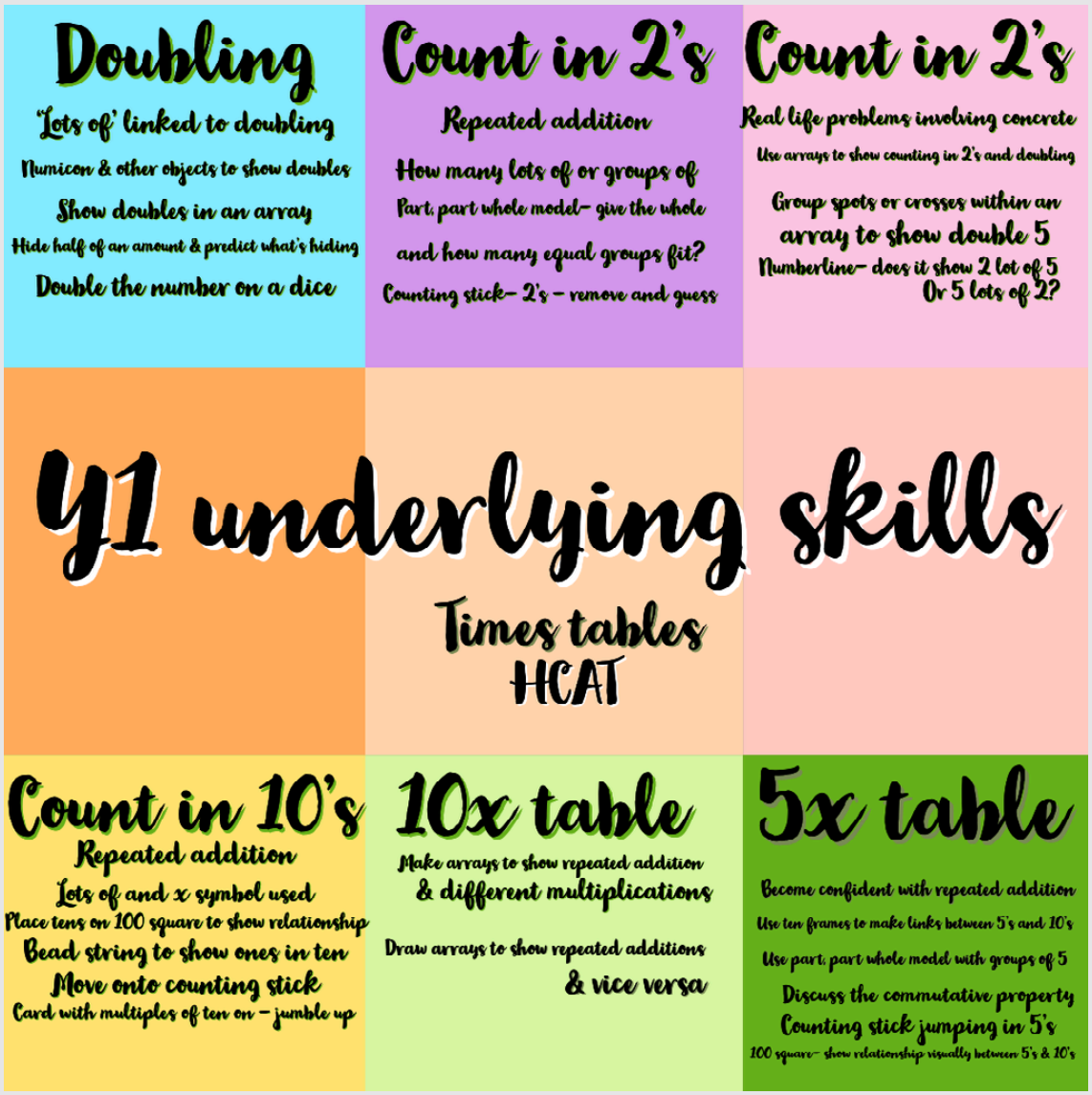
Is chanting enough?

Rote learning isn't enough to help children recall or apply their tables facts and a strategy-based approach is required to allow children to understand and make use of the properties of and connections within maths.

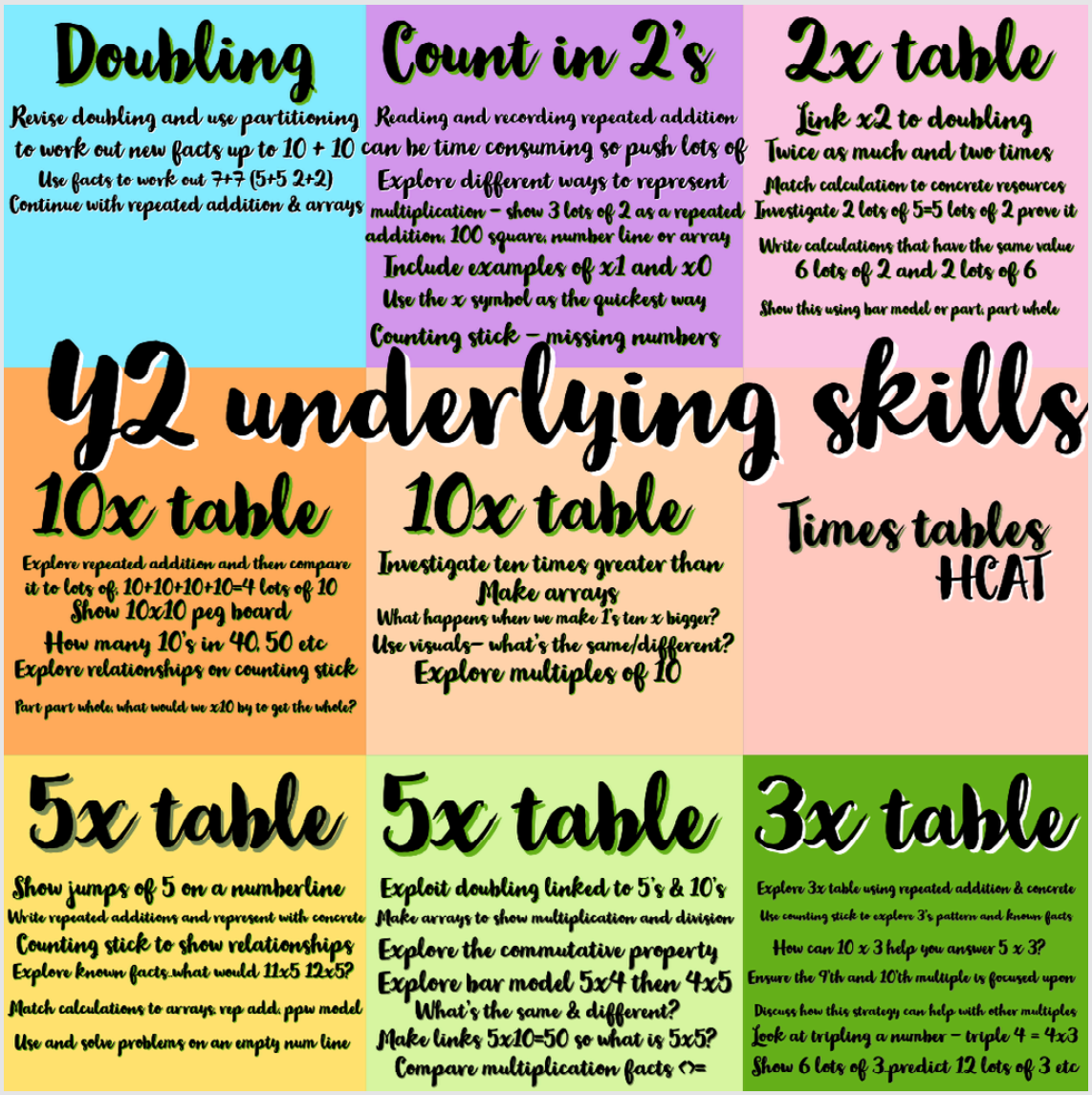
What are the expectations of each child?

EYFS focus on the development of number patterns and repeated addition.

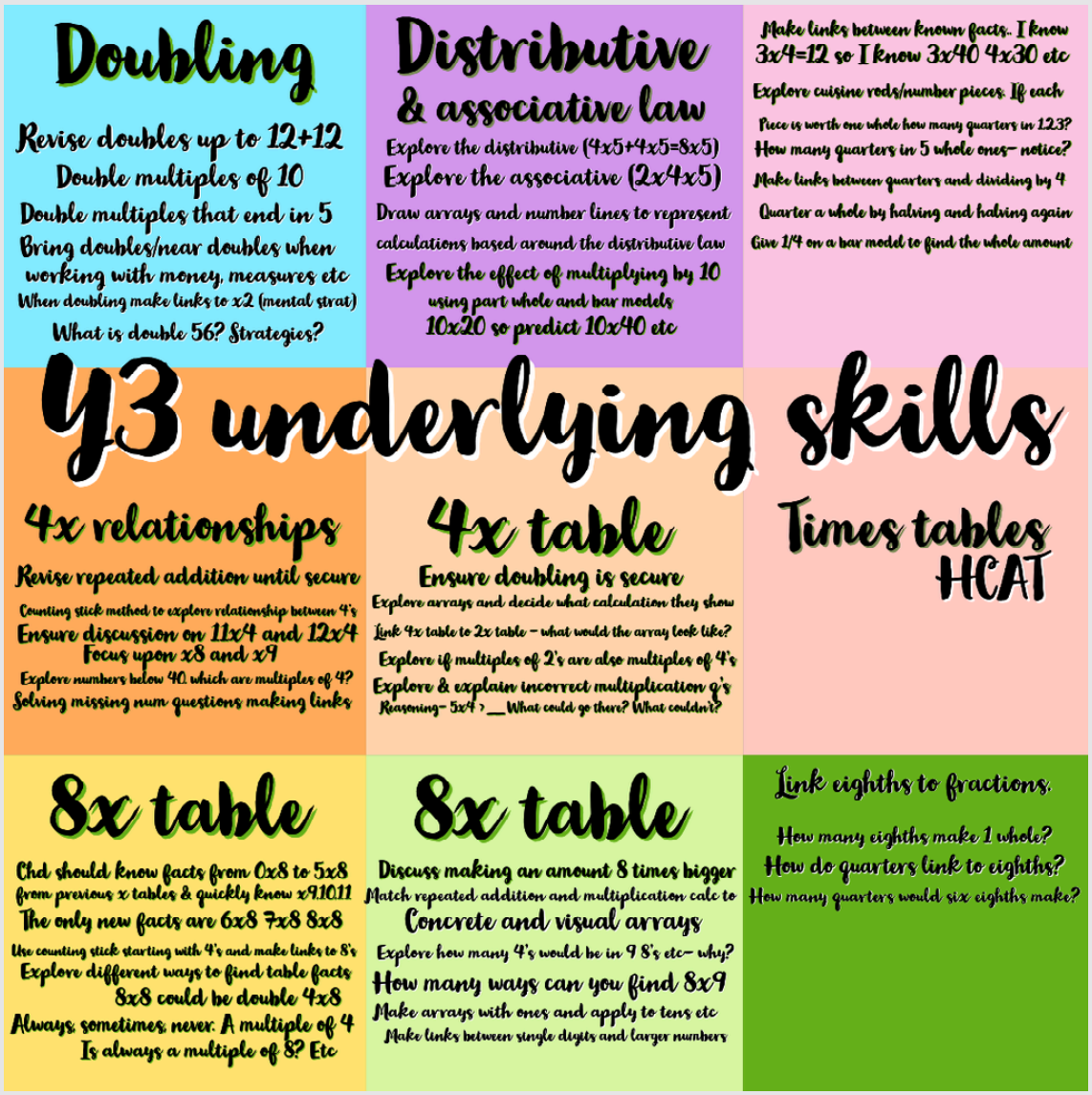
Y1 pupils will explore 2, 5 and 10 times tables throughout the year.



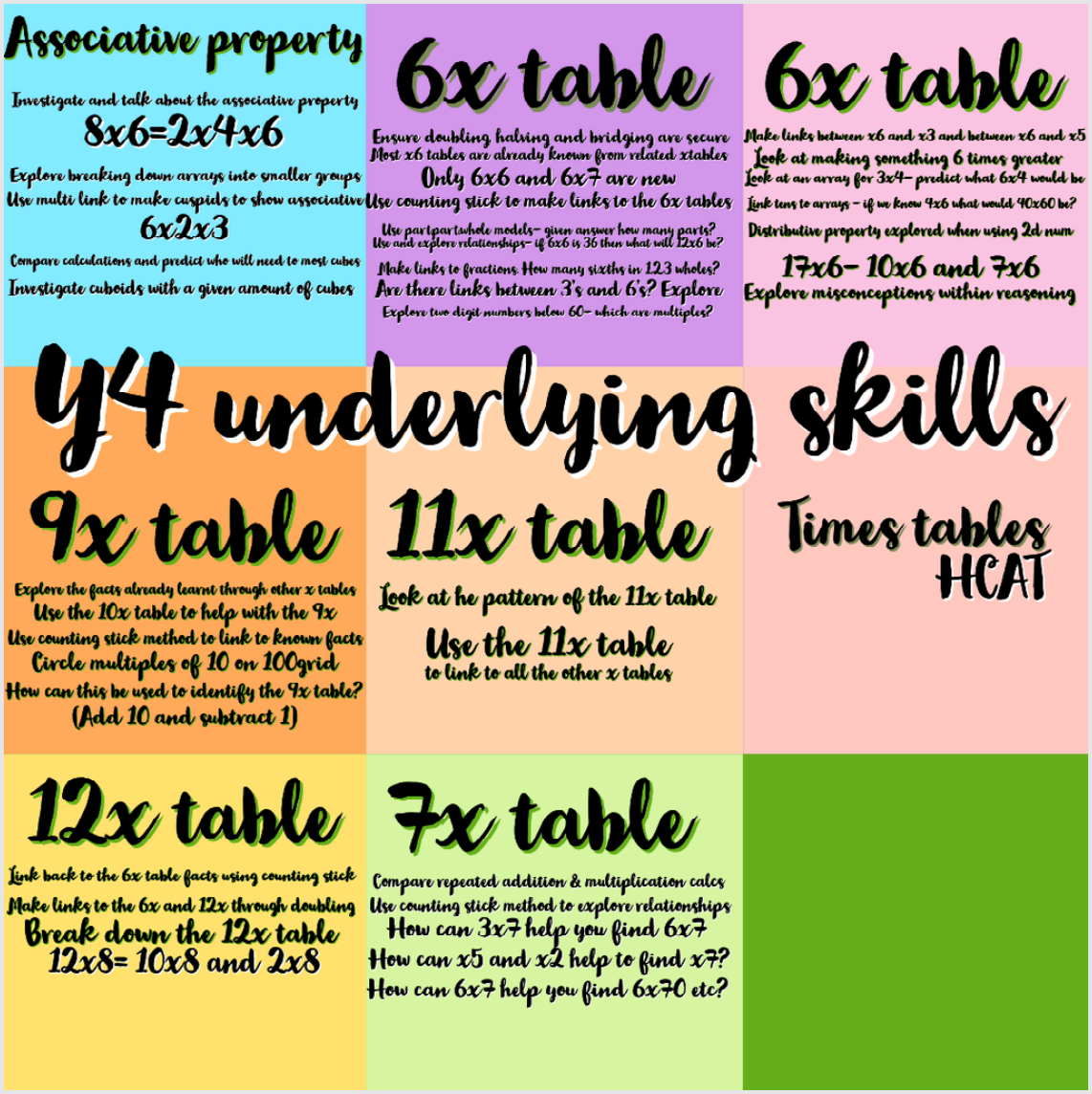
Y2 pupils will be taught 2, 5, 10, with the more able also covering 3 times tables.



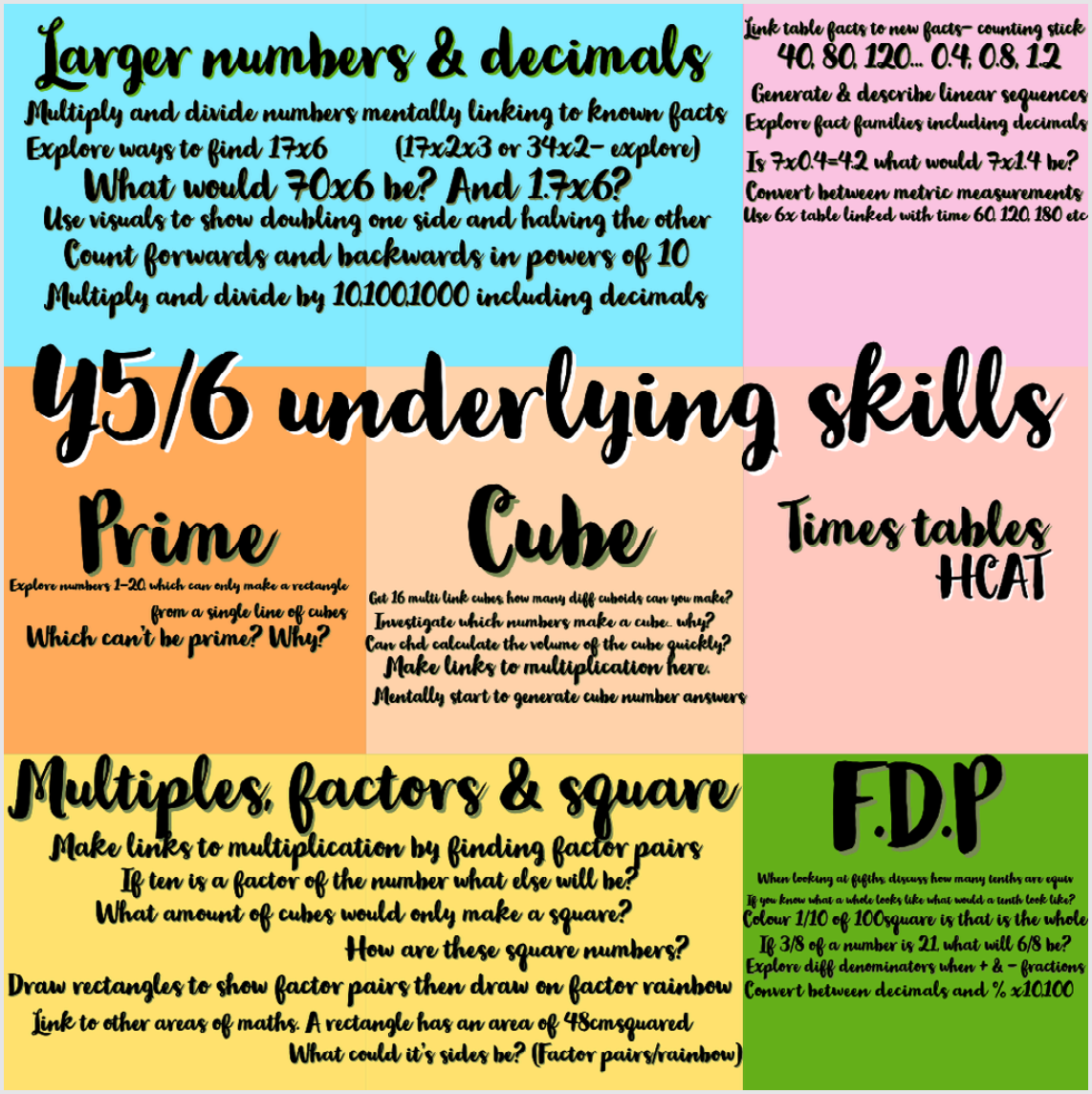
Y3 will continue to work on 2, 5 and 10 times tables and also 4 and 8s.



Y4 pupils should know all the times tables – they will need regular practise opportunities and should be able to mix times tables confidently.



Y5 and 6 pupils will continue to rehearse and develop their times table skills using larger numbers.



How do we teach Times Tables across school?

Our policy will share a number of ideas for the teaching of key strategies in KS1 and KS2 and provide ideas to support children in developing rapid recall of times tables through understanding the underlying structure of and relationships with multiplication.

Counting stick

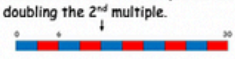
This is a wooden stick, one metre long, divided into ten equal parts. If you don't have one, a metre stick can easily be converted using tape to divide. An empty number line can also be used in the same way. This is a powerful way to represent number relationships and can also be used in Foundation Stage for counting in ones and finding missing numbers. Example below is for 3x table but can be adapted for any.

What is the first multiple? What table are we exploring?

Double the first multiple to find 2x

2x3

Discuss how the 4th multiple can be found by doubling the 2nd multiple.



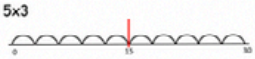
4x3

The 9th multiple can be found by subtracting one multiple from the 10th multiple, i.e. 30-3).

9x3

5th multiple – halve the tenth multiple).

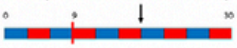
5x3



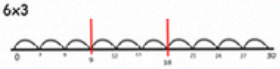
3rd multiple – triple the first multiple or double then add multiple.

3x3

6th multiple – double the third multiple,



6x3



Multiplication Grids

With older children, multiplication grids can be rearranged to highlight the links between different tables, investigate patterns and help reduce memory load. Some examples are given below.

It is important to focus upon making links to known facts and stressing that often one fact can help find another.

	1x	2x	3x
1	1	2	
2	2	4	
3	3	6	
4	4	8	
5	5	10	
6	6	12	
7	7	14	
8	8	16	
9	9	18	
10	10	20	

Fill in the tables grid for your 1 and 2 times table. Now fill it in for your 3x table. What do you notice? This strategy could be adapted to show the link between 10x, 5x and 15x.

Use the tens times table to help find your 5x facts.

	10x	5x
1	10	
2	20	
3	30	
4	40	
5	50	
6	60	
7	70	
8	80	
9	90	
10	100	

This could be adapted to explore multiplying by twenty or to explore the link between x1 and x0.5 (or x $\frac{1}{2}$) as well as other obvious doubling relationships (twos/ fours/ eights or threes /sixes/ twelves).

Fill in the tables grid for your 10 and 1 times table. Now fill it in for your 9x table.

	10x	1x	9x
1	10	1	
2	20	2	
3	30	3	
4	40	4	
5	50	5	
6	60	6	
7	70	7	
8	80	8	
9	90	9	
10	100	10	

What do you notice? Why does this happen? Can you prove it? Does it work with other numbers? Can you use this to find new facts?

Fill in the tables grid for your 10 and 2 times table. Now fill it in for your 8x table.

	10x	2x	8x
1	10	2	
2	20	4	
3	30	6	
4	40	8	
5	50	10	
6	60	12	
7	70	14	
8	80	16	
9	90	18	
10	100	20	

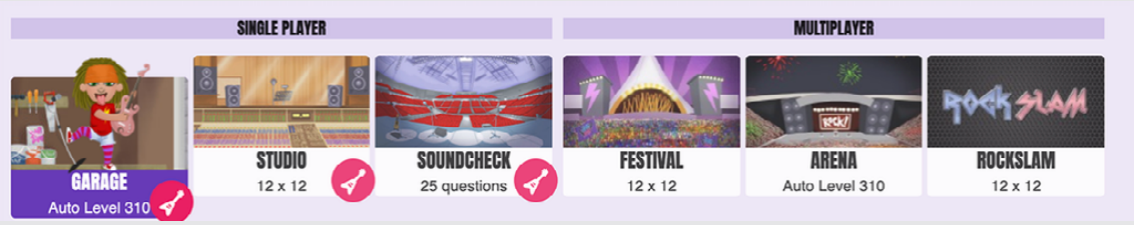
How do we keep it engaging?

Times Table Rockstars: Tracking, improve and assess pupils times table knowledge

How do we baseline children?

Using TTRS, the baseline is needed to see and compare improvement. When using the iPad the baseline simply requires playing a 'Gig' game. This issues 100 multiplication questions on the 10s, followed by 10 questions on each of the 2s, 5s, 3s, 4s, 8s, 6s, 7s and 9s and then 5 questions on the 11s and the 12s. There is a 5 minute time limit and pupils will not necessarily get round to answering all 100 questions during that time which is fine.

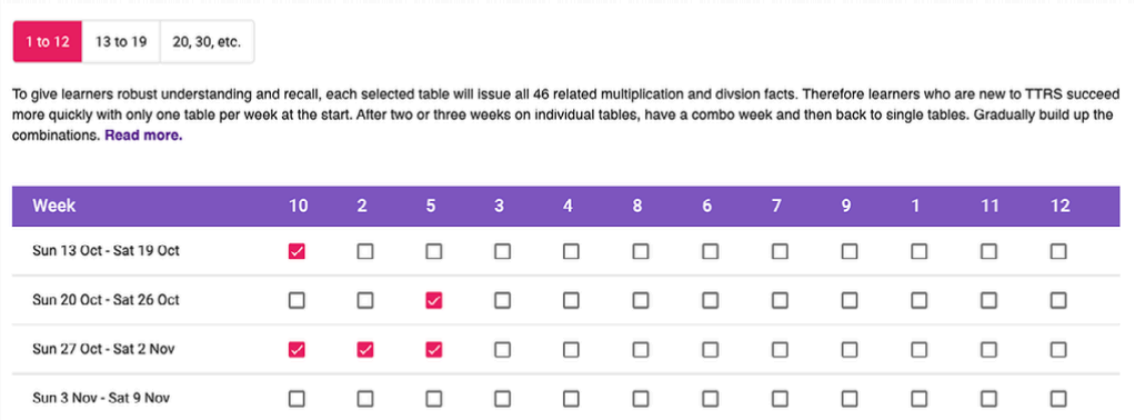
After the gig, pupils will be placed at the best starting point on the training course. IMPORTANT: Automatic training mode needs to be turned on for 'gig' game to appear! (Set tables>choose class>automatic training turn on)




1
2
3
4
5
6
7
8
9
75
72
69
66
63
60
57
54
51
48
45
42
39

How can we personalise Times Tables for every pupil?

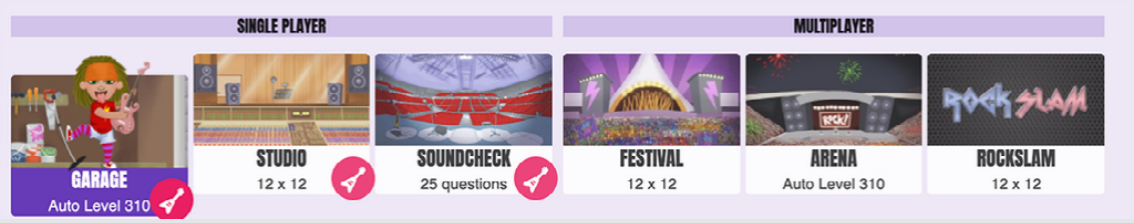
Using TTRS, we select specific tables that we want the pupils to work on. We also use our maths 'Year on a page' and each pupil's 'personalised heatmap' for guidance on what times tables the children in our classes need to be focusing on. It is easy to ensure that all pupils are challenged through a wide variety of times tables.



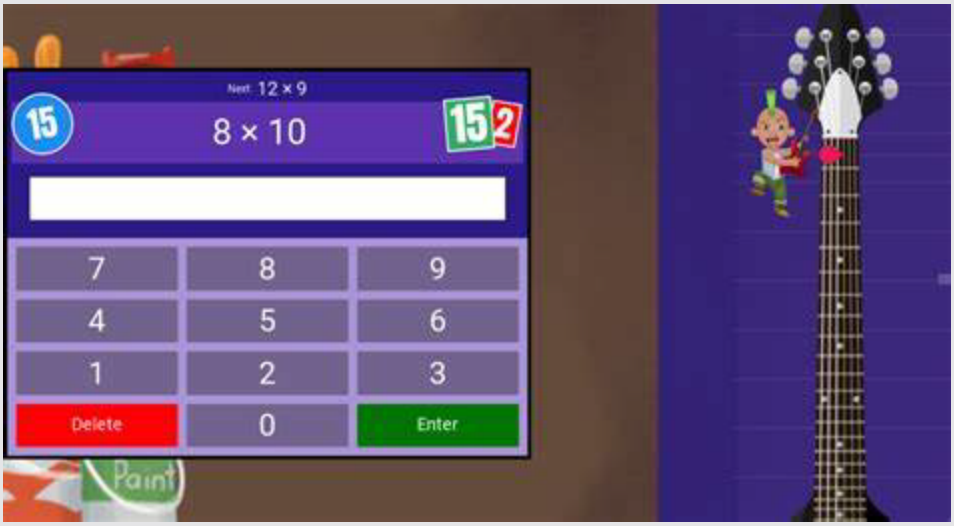
An example of how teachers can mould specific focus times tables to each child to create a tailored approach.

How do we ensure pupils are using the app correctly?

We provide time for pupils to practise their focus times tables and make sure they are set them on TTRS. When pupils have selected 'Garage' or 'Arena' they are purely tested on their focus tables set by teachers. If they choose 'Studio' or 'Festival' they are focusing on random tables up to 12 x 12.



Example of the types of games children can access on the app



Do we have a set time and structure to teach times tables?

Little and often is better than a long session once a week. Alongside the use of TTRS, we understand the importance that we teach strategies to build on conceptual understanding and progressive steps can be found on the calculation policy.

After pupils have completed their baseline, they will have their own personalised heatmap. These should be analysed by the class teacher to ensure personalised times tables are set for specific groups.

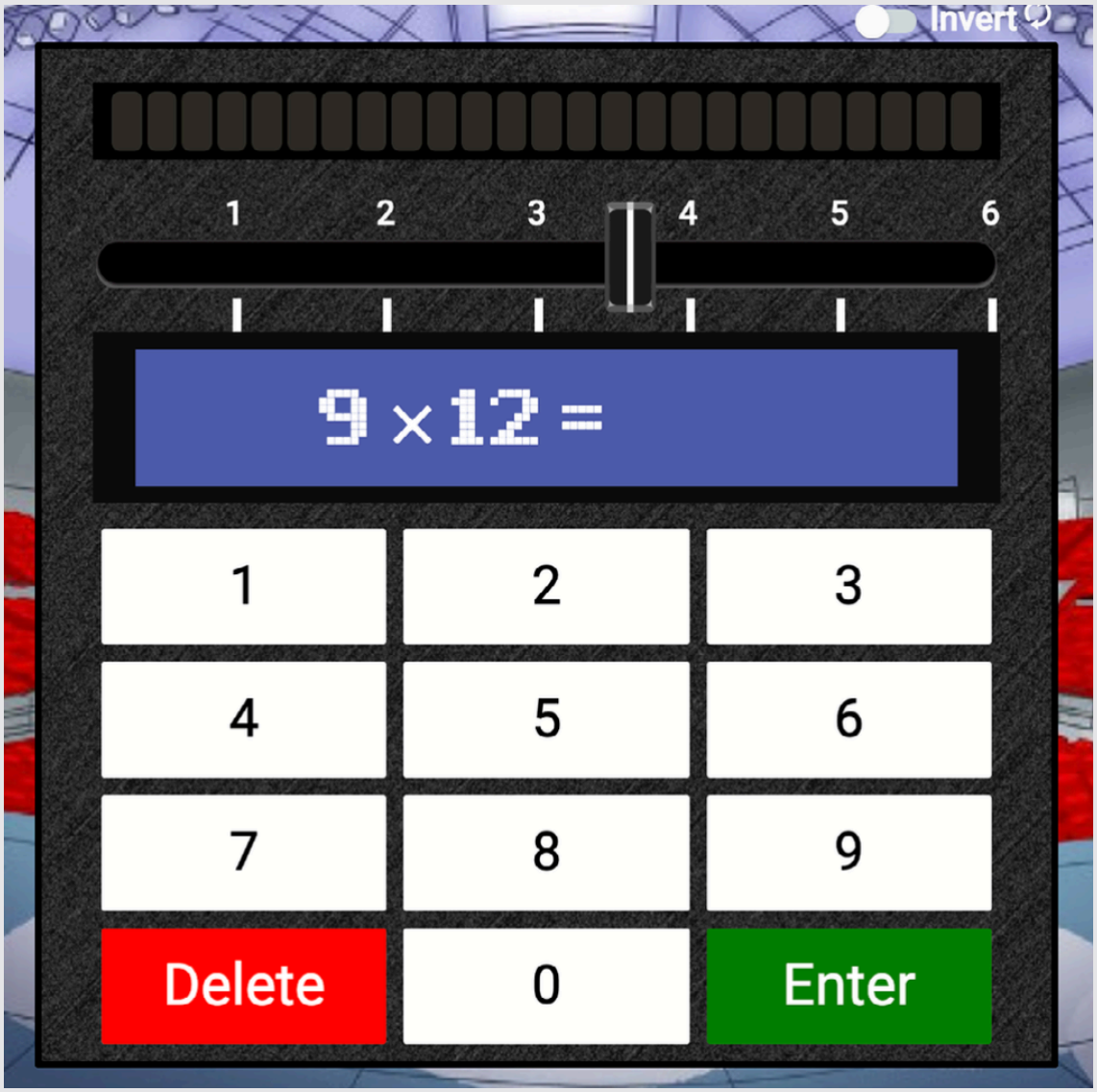
	Gender	Reg Group	SEN Status	pil Premium Indicator	Autumn 2 Score. Dec 2019	Spring Term 1 February 2020	
	F	Polar Bear	K		13	17	
	M	Polar Bear	K	Y	11	11	
	F	Polar Bear			22	25	
	F	Polar Bear			2	6	
	F	Polar Bear		Y	7	7	
	M	Polar Bear			7	11	
	F	Polar Bear			11	11	
	F	Polar Bear			8	15	
	F	Polar Bear	E	Y	0	1	
	M	Polar Bear			4	7	
	M	Polar Bear	K	Y	18	19	
	F	Polar Bear			10	10	
	F	Polar Bear			5	7	
	M	Polar Bear	K		0	2	

This is an example of a tracker that we use at Birdwell to ensure we know which pupils require extra practice and support to be ready for the Multiplication Check.

Over the course of the term pupils should gain confidence in their set times tables when using the 'garage' feature.

On a weekly basis (especially with Y3 & Y4) pupils should take the 'soundcheck' assessment to evaluate their progress towards the expected standard. The 'soundcheck' replicates the test Y4 pupils will be taking nationally.

It is expected that children achieve a score of 20+ by the end of Y4 in order to pass the Multiplication Times Table Check



This is a snapshot taken from the 'soundcheck' mode which will help pupils to prepare for the Multiplication Tables Check in Year 4

How can I support my child as a parent?

At West Meadows, we involve parents and encourage them to support the use of the TTRS app, highlighting the importance of practising times tables at home. By sharing information about the Year 4 times tables check and sending home pupils' heat maps, parents can clearly see which times tables their children need more practice with.

	2	3	4	5	6	7	8	9	10	11	12
2	2 x 2	2 x 3	2 x 4	2 x 5	2 x 6	2 x 7	2 x 8	2 x 9	2 x 10	2 x 11	2 x 12
3	3 x 2	3 x 3	3 x 4	3 x 5	3 x 6	3 x 7	3 x 8	3 x 9	3 x 10	3 x 11	3 x 12
4	4 x 2	4 x 3	4 x 4	4 x 5	4 x 6	4 x 7	4 x 8	4 x 9	4 x 10	4 x 11	4 x 12
5	5 x 2	5 x 3	5 x 4	5 x 5	5 x 6	5 x 7	5 x 8	5 x 9	5 x 10	5 x 11	5 x 12
6	6 x 2	6 x 3	6 x 4	6 x 5	6 x 6	6 x 7	6 x 8	6 x 9	6 x 10	6 x 11	6 x 12
7	7 x 2	7 x 3	7 x 4	7 x 5	7 x 6	7 x 7	7 x 8	7 x 9	7 x 10	7 x 11	7 x 12
8	8 x 2	8 x 3	8 x 4	8 x 5	8 x 6	8 x 7	8 x 8	8 x 9	8 x 10	8 x 11	8 x 12
9	9 x 2	9 x 3	9 x 4	9 x 5	9 x 6	9 x 7	9 x 8	9 x 9	9 x 10	9 x 11	9 x 12
10	10 x 2	10 x 3	10 x 4	10 x 5	10 x 6	10 x 7	10 x 8	10 x 9	10 x 10	10 x 11	10 x 12
11	11 x 2	11 x 3	11 x 4	11 x 5	11 x 6	11 x 7	11 x 8	11 x 9	11 x 10	11 x 11	11 x 12
12	12 x 2	12 x 3	12 x 4	12 x 5	12 x 6	12 x 7	12 x 8	12 x 9	12 x 10	12 x 11	12 x 12

An example of a pupil's 'Heatmap' which highlights the times table children are finding difficult. They are RAG rated so red means they need to practice through to bright green which means they are secure. If a times table is grey, it means a pupil has not had the opportunity to practise this times table question yet.

We also celebrated TTRockstar day and other National TTRS competitions where we dressed up in our favourite rock outfits and celebrated those children who had been using TTRockstars at home regularly.


KNOWING MORE AND
REMEMBERING MORE

How do we ensure that children know more and remember more in each year group?

It is important to ensure that children get a chance to revisit times tables they have previously been taught along with their focus tables that half term.

Questions can be generated through the TTRS website and teachers can select a range of tables they would like their children to answer. This enables children to revisit and make links to previous learning and further their understanding.

Year Group	Term	Sound Check (TTRS)	Expected Standard
Y1	Autumn (Baseline if appropriate)	Focussed times tables	% of correct answers increasing
	Spring	Focussed times tables	% of correct answers increasing
	Summer	Focussed times tables	% of correct answers increasing
Y2	Autumn (Baseline)	Complete 'Gig' (Turn ATM is on)	EXS = 10+
	Spring	Sound Check	EXS = 10+
	Summer	Sound Check	EXS = 10+
Y3	Autumn (Baseline)	Complete 'Gig' (Turn ATM is on)	Add score weekly to excel sheet
	Autumn 2	Sound Check	EXS= 15+ - Add score weekly to excel sheet
	Autumn 2 (Repeat baseline)	Reset Gig and complete to generate new heatmap.	Add score weekly to excel sheet
	Spring 1	Reset Gig and complete to generate new heatmap.	Add score weekly to excel sheet
	Spring 1	Sound Check	EXS = 15+ *Results added to Excel at the end of every week.*
	Spring 2	Sound Check	
	Summer 1	Reset Gig and complete to generate new heatmap.	Add score weekly to excel sheet
	Summer 1	Sound Check	EXS = 20+ *Results added to Excel at the end of every week.*
	Summer 2	Sound Check	
Y4	Autumn 1 (Baseline)	Complete 'Gig' (Turn ATM is on)	EXS = 20+
	Autumn 1	Sound Check	EXS= 20+ Add score weekly to excel sheet.
	Autumn 2	Reset Gig and complete to generate new heat map	Add score weekly to excel sheet
	Spring 1	Reset gig and complete to generate new heat map.	Add score weekly to excel sheet.
	Spring 1	Sound Check	EXS = 22+
	Spring 2	Sound Check	

			Results added to Excel at the end of every week.
	Summer 1	Rest gig and complete to generate new heatmap	Add score weekly excel sheet.
	Summer 1	Sound Check	EXS = 23+ *Results added to Excel at the end of every week.*
	Summer 2 (before the check)	Sound Check	
Y5	Autumn (Baseline)	Complete 'Gig' (Turn ATM is on)	EXS = 25
	Spring	Sound Check	EXS = 25
	Summer	Sound Check	EXS = 25