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Make a change with SAMSON Maths

“ You will significantly increase
your School's Maths Attainment. ”

Fun Maths...

...for P1 - P7



GUARANTEED*



* If used properly throughout all school years.

www.strongmaths.co.uk

SAMSON - Based on a wealth of experience



STRONG
MATHS
Raising Attainment for ALL

I have been teaching in Primary Schools for over 25 years and almost 20 in a large school in Dumfries and Galloway with around 390 pupils.

I have taught in Primary 7 for over ten years but in my role as Depute Head, I have also been able to work alongside teachers across the school.

SAMSON was a response to the apparent fall in numeracy standards as outlined by the results from the Scottish Survey of Numeracy.

It was first trialled in Primary 7 and then Primary 6. In the last two years it has been developed and tried out in Primary 4 and 5. The programme is now complete from P1 to P7.

The aim with **SAMSON** was to create a structured and systematic programme for maths that could work in any school and that any teacher could deliver with minimal preparation for maximum impact on learning.

The key to its success is not so much what is taught but *how* you teach it. There are no gimmicks and things are kept simple so as not to confuse children. **SAMSON** provides the opportunity for all teachers to develop an interactive teaching style that is backed up by questioning and discussion with the children. It also gives all children the opportunity to succeed and will be a valuable resource in trying to raise attainment while closing the gap between the higher and lower achievers within any class, school or cluster. The results prove that it works and because of this I felt it was time to make it available to all schools.

I hope you enjoy using **SAMSON** and that it will help you and your pupils develop the same levels of improvement and motivation in numeracy as I have noted in my experience. The attainment figures on page 6 clearly evidence this.

Neil Armstrong.

Managing Director,
Strong Maths

“SAMSON is a teaching approach which is **GUARANTEED*** to significantly raise pupil attainment in mental maths.**”**

* If used properly throughout all school years.

“

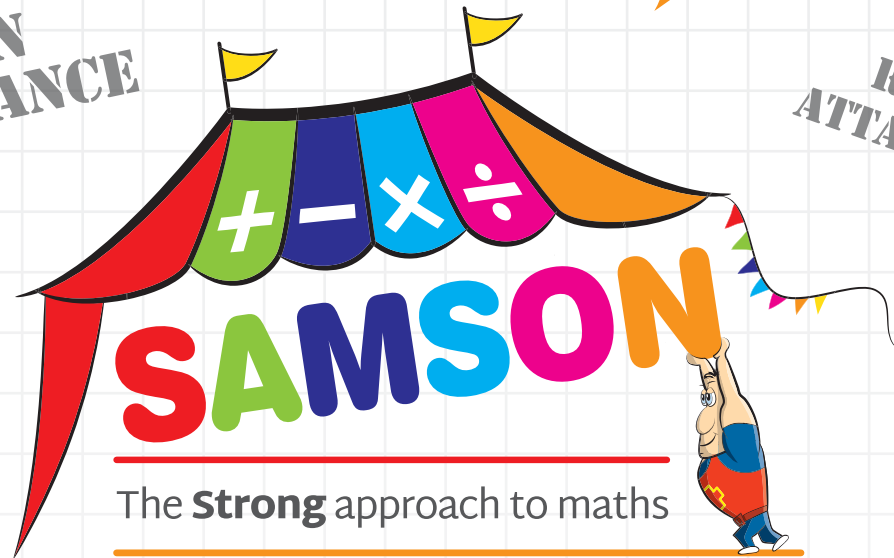
I've seen mental maths future...
and its name is **SAMSON**.

”

Neil Armstrong - 2017

**PROVEN
PERFORMANCE**

**RAISES
ATTAINMENT**



SPEED

ACCURACY

MASTERY

SELF-TESTING

OVERLEARNING

NUMBERS

Ten Key Features of **SAMSON**

1

SAMSON

...massively improves children's mental skills in



Addition



Subtraction



Multiplication



Division

2

SAMSON

...uses five essential teaching techniques for 'mastery':

- Overlearning
- Deliberate Practice
- Self-testing
- Distributive Learning
- Interleaving



Seven **SAMSON** Number Wagons make their way through each stage, each year, destination 'Mastery'.
All aboard: Mastery is our final stop!



3

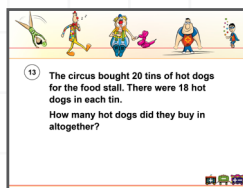
SAMSON

...uses creative, innovative resources:



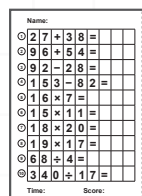
Mental Flipcharts (MF)

for each class P1-P7:
each flipchart has 10 questions on flashcards for teaching from or testing.



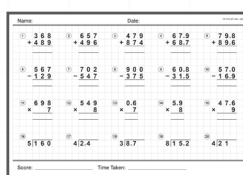
Mental Flipcharts (Word Problems)

The Mental Flipcharts also contain five word problems set in a circus context.



Mental Strip Sheets (SS)

go along with each flipchart:
each strip sheet has the same ten questions that are on the flipchart.



Timed Challenge Sheets (TCS)

are used separately, but alongside mental flipcharts and strip sheets to:

- Help children learn table facts and number bonds.
- Provide deliberate practice in specific areas of maths.

4

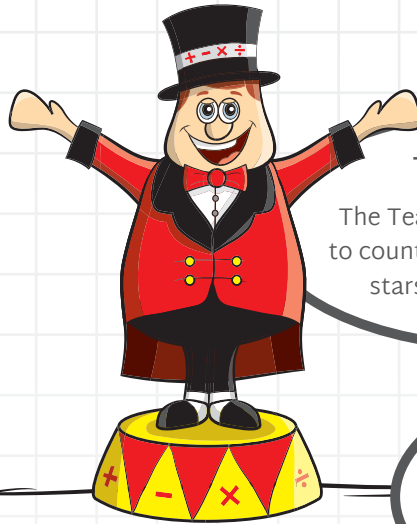
SAMSON uses mental maths in a real life context.

There are 5 word problems on every flipchart set in a circus context. Here are the circus characters that will bring the numbers to life:

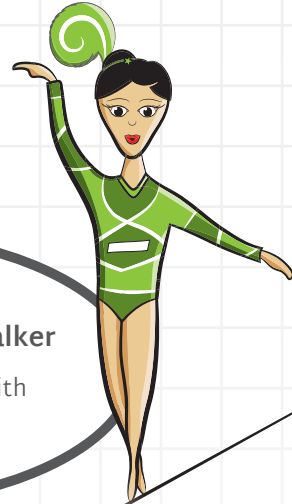
“

Children love catchphrases and we can be used to capture their interest and make it easier for them to remember.

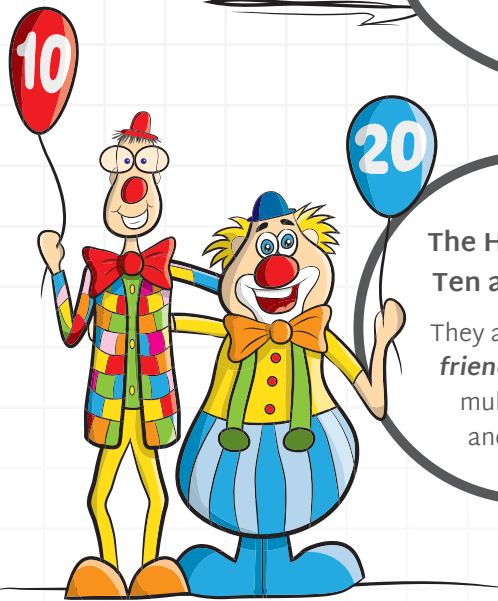
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**The Ringmaster**

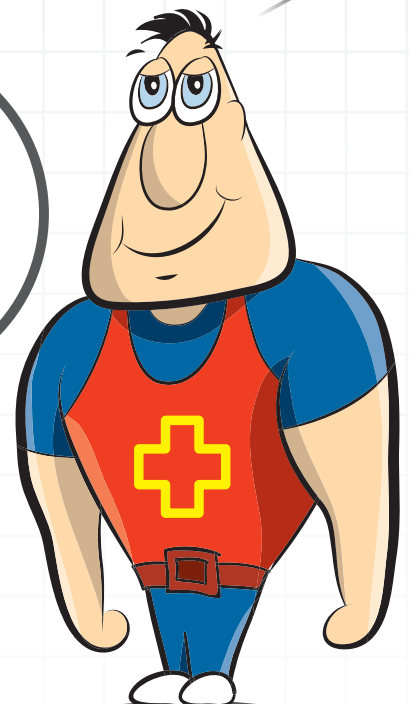
The Teacher invites the children to count along and introduces the stars of *The Number Top*.

**Stephanie (Steph), the Takeaway Tightrope Walker**

On that takeaway tightrope with **Steps 1 and 2** to master subtraction.

**The Hired Hands Ten and Twenty**

They are *your best friends* to master multiplication and division.

**SAMSON**

The Big Guy, The Strong Man who lifts *Tiny Tim* - (the number bond expert) on his shoulder to master addition.

Tiny Tim

The Boy Genius and Number Bond Expert.

He handles all the number bonds then **SAMSON** lifts him up on his shoulder to finish off all the addition sums.



SAMSON gets it right for every child (GIRFEC): all are given the same opportunity and can succeed - not just a chosen few.


...to master each addition, subtraction, multiplication and division mental strategy.

- A whole school approach from P1-P7: a structured, systematic programme for mental maths which builds gradually from year to year.
- Planning sheets (Number Wagons) are provided for each stage and each strategy as well as a methodology advice booklet which explains how to deliver **SAMSON**.

[illegible]

8

SAMSON has been used in a large primary school in Dumfries and Galloway (390 pupils) which has a significant area of deprivation within its catchment and a wide range of pupils.

		UK average
2012	82	100
2013	95	100
2014	111	100
2015	124.9	100
2016	121.7	100
2017	124.4	100

9

SAMSON ...has been produced through working on the frontline

...in classrooms, with children and alongside teachers from P4-P7. The material was first trialled in P7 and then working alongside teachers and pupils in P4, 5 and 6.

10

SAMSON ...gets the balance right between procedural fluency and number sense.

- Children can apply the mental strategies and skills to all areas of maths.
- They develop number sense and become good decision makers.
- **SAMSON** helps confidence and encourages flexibility and creativity with numbers.

3rd
Level

BENCHMARKS



curriculum for excellence

Early
Level

OUTCOMES

13 Katie, who looks after the elephants in the circus, earns £15 per hour. If she worked for 14 hours, how much did she earn in total?

$$15 \times 14 = 150 + 60 = 210$$

“

There is maximum impact on learning for very little time and preparation.

”

SAMSON: What you get in your folders...

6

Folders
P1 - P7

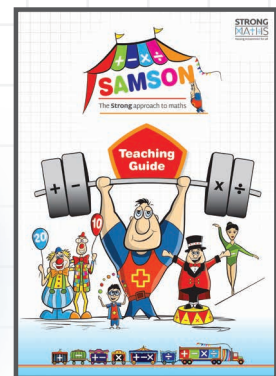
The **SAMSON** folders have been created for a whole school approach P1 - P7.



✓ 6

PRINTED COPIES
(one in each folder)

Teaching Advice Booklet



✓ OVER
400

PHOTOCOPIABLE MASTER COPIES

P3 -P7 Timed Challenge Sheet worksheets (TCS) for deliberate practice in key areas of maths.

Timed Challenge Sheet worksheets (TCS) for the four processes.

Name: _____ Date: _____

1	3 6 8 + 4 8 9	2	6 5 7 + 4 9 6	3	4 7 9 + 8 7 4	4	6 7 9 + 6 8 7	5	7 9 8 + 8 9 6
6	5 6 7 - 1 2 9	7	7 0 2 - 5 4 7	8	9 0 0 - 3 7 5	9	6 0 8 - 3 1 5	10	5 7 0 - 1 6 9
11	6 9 8 x 7	12	5 4 9 x 8	13	0.6 x 7	14	5.9 x 8	15	4 7 6 x 9
16	5 1 6 0	17	4 2.4	18	3 8.7	19	8 1 5.2	20	4 2 1

Score: _____ Time Taken: _____

✓ 48

PRINTED MASTER COPIES

P1-P7 Planning grids for the
SAMSON Number Wagons.

P7 Samson Number Wagon 7A - 4 Processes			
KS2/2019/2020/2021/2022/2023/2024/2025/2026/2027/2028/2029/2030/2031/2032/2033/2034/2035/2036/2037/2038/2039/2040/2041/2042/2043/2044/2045/2046/2047/2048/2049/2050/2051/2052/2053/2054/2055/2056/2057/2058/2059/2060/2061/2062/2063/2064/2065/2066/2067/2068/2069/2070/2071/2072/2073/2074/2075/2076/2077/2078/2079/2080/2081/2082/2083/2084/2085/2086/2087/2088/2089/2090/2091/2092/2093/2094/2095/2096/2097/2098/2099/2100/2101/2102/2103/2104/2105/2106/2107/2108/2109/2110/2111/2112/2113/2114/2115/2116/2117/2118/2119/2120/2121/2122/2123/2124/2125/2126/2127/2128/2129/2130/2131/2132/2133/2134/2135/2136/2137/2138/2139/2140/2141/2142/2143/2144/2145/2146/2147/2148/2149/2150/2151/2152/2153/2154/2155/2156/2157/2158/2159/2160/2161/2162/2163/2164/2165/2166/2167/2168/2169/2170/2171/2172/2173/2174/2175/2176/2177/2178/2179/2180/2181/2182/2183/2184/2185/2186/2187/2188/2189/2190/2191/2192/2193/2194/2195/2196/2197/2198/2199/2200/2201/2202/2203/2204/2205/2206/2207/2208/2209/2210/2211/2212/2213/2214/2215/2216/2217/2218/2219/2220/2221/2222/2223/2224/2225/2226/2227/2228/2229/2230/2231/2232/2233/2234/2235/2236/2237/2238/2239/2240/2241/2242/2243/2244/2245/2246/2247/2248/2249/2250/2251/2252/2253/2254/2255/2256/2257/2258/2259/2260/2261/2262/2263/2264/2265/2266/2267/2268/2269/2270/2271/2272/2273/2274/2275/2276/2277/2278/2279/2280/2281/2282/2283/2284/2285/2286/2287/2288/2289/2290/2291/2292/2293/2294/2295/2296/2297/2298/2299/2300/2301/2302/2303/2304/2305/2306/2307/2308/2309/2310/2311/2312/2313/2314/2315/2316/2317/2318/2319/2320/2321/2322/2323/2324/2325/2326/2327/2328/2329/2330/2331/2332/2333/2334/2335/2336/2337/2338/2339/2340/2341/2342/2343/2344/2345/2346/2347/2348/2349/2350/2351/2352/2353/2354/2355/2356/2357/2358/2359/2360/2361/2362/2363/2364/2365/2366/2367/2368/2369/2370/2371/2372/2373/2374/2375/2376/2377/2378/2379/2380/2381/2382/2383/2384/2385/2386/2387/2388/2389/2390/2391/2392/2393/2394/2395/2396/2397/2398/2399/2400/2401/2402/2403/2404/2405/2406/2407/2408/2409/2410/2411/2412/2413/2414/2415/2416/2417/2418/2419/2420/2421/2422/2423/2424/2425/2426/2427/2428/2429/2430/2431/2432/2433/2434/2435/2436/2437/2438/2439/2440/2441/2442/2443/2444/2445/2446/2447/2448/2449/2450/2451/2452/2453/2454/2455/2456/2457/2458/2459/2460/2461/2462/2463/2464/2465/2466/2467/2468/2469/2470/2471/2472/2473/2474/2475/2476/2477/2478/2479/2480/2481/2482/2483/2484/2485/2486/2487/2488/2489/2490/2491/2492/2493/2494/2495/2496/2497/2498/2499/2500/2501/2502/2503/2504/2505/2506/2507/2508/2509/2510/2511/2512/2513/2514/2515/2516/2517/2518/2519/2520/2521/2522/2523/2524/2525/2526/2527/2528/2529/2530/2531/2532/2533/2534/2535/2536/2537/2538/2539/2540/2541/2542/2543/2544/2545/2546/2547/2548/2549/2550/2551/2552/2553/2554/2555/2556/2557/2558/2559/2560/2561/2562/2563/2564/2565/2566/2567/2568/2569/2570/2571/2572/2573/2574/2575/2576/2577/2578/2579/2580/2581/2582/2583/2584/2585/2586/2587/2588/2589/2590/2591/2592/2593/2594/2595/2596/2597/2598/2599/2600/2601/2602/2603/2604/2605/2606/2607/2608/2609/2610/2611/2612/2613/2614/2615/2616/2617/2618/2619/2620/2621/2622/2623/2624/2625/2626/2627/2628/2629/2630/2631/2632/2633/2634/2635/2636/2637/2638/2639/2640/2641/2642/2643/2644/2645/2646/2647/2648/2649/2650/2651/2652/2653/2654/2655/2656/2657/2658/2659/2660/2661/2662/2663/2664/2665/2666/2667/2668/2669/2670/2671/2672/2673/2674/2675/2676/2677/2678/2679/2680/2681/2682/2683/2684/2685/2686/2687/2688/2689/2690/2691/2692/2693/2694/2695/2696/2697/2698/2699/2700/2701/2702/2703/2704/2705/2706/2707/2708/2709/2710/2711/2712/2713/2714/2715/2716/2717/2718/2719/2720/2721/2722/2723/2724/2725/2726/2727/2728/2729/2730/2731/2732/2733/2734/2735/2736/2737/2738/2739/2740/2741/2742/2743/2744/2745/2746/2747/2748/2749/2750/2751/2752/2753/2754/2755/2756/2757/2758/2759/2760/2761/2762/2763/2764/2765/2766/2767/2768/2769/2770/2771/2772/2773/2774/2775/2776/2777/2778/2779/2780/2781/2782/2783/2784/2785/2786/2787/2788/2789/2790/2791/2792/2793/2794/2795/2796/2797/2798/2799/2800/2801/2802/2803/2804/2805/2806/2807/2808/2809/2810/2811/2812/2813/2814/2815/2816/2817/2818/2819/2820/2821/2822/2823/2824/2825/2826/2827/2828/2829/2830/2831/2832/2833/2834/2835/2836/2837/2838/2839/2840/2841/2842/2843/2844/2845/2846/2847/2848/2849/2850/2851/2852/2853/2854/2855/2856/2857/2858/2859/2860/2861/2862/2863/2864/2865/2866/2867/2868/2869/2870/2871/2872/2873/2874/2875/2876/2877/2878/2879/2880/2881/2882/2883/2884/2885/2886/2887/2888/2889/2890/2891/2892/2893/2894/2895/2896/2897/2898/2899/2900/2901/2902/2903/2904/2905/2906/2907/2908/2909/2910/2911/2912/2913/2914/2915/2916/2917/2918/2919/2920/2921/2922/2923/2924/2925/2926/2927/2928/2929/2930/2931/2932/2933/2934/2935/2936/2937/2938/2939/2940/2941/2942/2943/2944/2945/2946/2947/2948/2949/2950/2951/2952/2953/2954/2955/2956/2957/2958/2959/2960/2961/2962/2963/2964/2965/2966/2967/2968/2969/2970/2971/2972/2973/2974/2975/2976/2977/2978/2979/2980/2981/2982/2983/2984/2985/2986/2987/2988/2989/2990/2991/2992/2993/2994/2995/2996/2997/2998/2999/3000/3001/3002/3003/3004/3005/3006/3007/3008/3009/3010/3011/3012/3013/3014/3015/3016/3017/3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SAMSON: What you get in your digital content package...

1

Digital Content
Package

“ 30,000 ”

calculations in 7 years

A real difference when children
have this under their belt.

OVER

500

.flipchart FILES

CONTAINING OVER

7000

INDIVIDUAL SLIDES

OVER

400

.flipchart FILES • Same as Photocopiable Master

P3 - P7 Timed Challenge Sheet (TCS) Flipcharts.

Mental Flipcharts (MF) for each class P1-P7:

Each flipchart has 10 questions on flashcards for teaching from or testing. In addition, there are also 5 word problem questions (11-15) for teaching and discussion with the children as to how each strategy works in context.

Name:		Date:							
1	$\begin{array}{r} 368 \\ + 489 \\ \hline \end{array}$	2	$\begin{array}{r} 657 \\ + 496 \\ \hline \end{array}$	3	$\begin{array}{r} 479 \\ + 874 \\ \hline \end{array}$	4	$\begin{array}{r} 679 \\ + 687 \\ \hline \end{array}$	5	$\begin{array}{r} 798 \\ + 896 \\ \hline \end{array}$
6	$\begin{array}{r} 567 \\ - 129 \\ \hline \end{array}$	7	$\begin{array}{r} 702 \\ - 547 \\ \hline \end{array}$	8	$\begin{array}{r} 900 \\ - 375 \\ \hline \end{array}$	9	$\begin{array}{r} 608 \\ - 315 \\ \hline \end{array}$	10	$\begin{array}{r} 570 \\ - 169 \\ \hline \end{array}$
11	$\begin{array}{r} 698 \\ \times 7 \\ \hline \end{array}$	12	$\begin{array}{r} 549 \\ \times 8 \\ \hline \end{array}$	13	$\begin{array}{r} 0.6 \\ \times 7 \\ \hline \end{array}$	14	$\begin{array}{r} 5.9 \\ \times 8 \\ \hline \end{array}$	15	$\begin{array}{r} 47.6 \\ \times 9 \\ \hline \end{array}$
16	$\begin{array}{r} 5160 \\ \hline \end{array}$	17	$\begin{array}{r} 42.4 \\ \hline \end{array}$	18	$\begin{array}{r} 38.7 \\ \hline \end{array}$	19	$\begin{array}{r} 815.2 \\ \hline \end{array}$	20	$\begin{array}{r} 421 \\ \hline \end{array}$
Score: _____ Time Taken: _____									

<p>2</p> $96 + 54$	<p>11</p> <p>The circus wagons travelled 78 miles to their first stop.</p> <p>If the wagons then continued to travel 60 miles more, how far did they travel altogether?</p>	<p>£85.</p> <p>any</p>	<p>dogs</p> <p>not</p> <p>in</p>	<p>to the</p> <p>of 14.</p> <p>bought?</p>	<p>and a</p>
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Classroom Posters

Classroom posters are available at additional cost
contact info@strongmaths.co.uk for full pricelist.

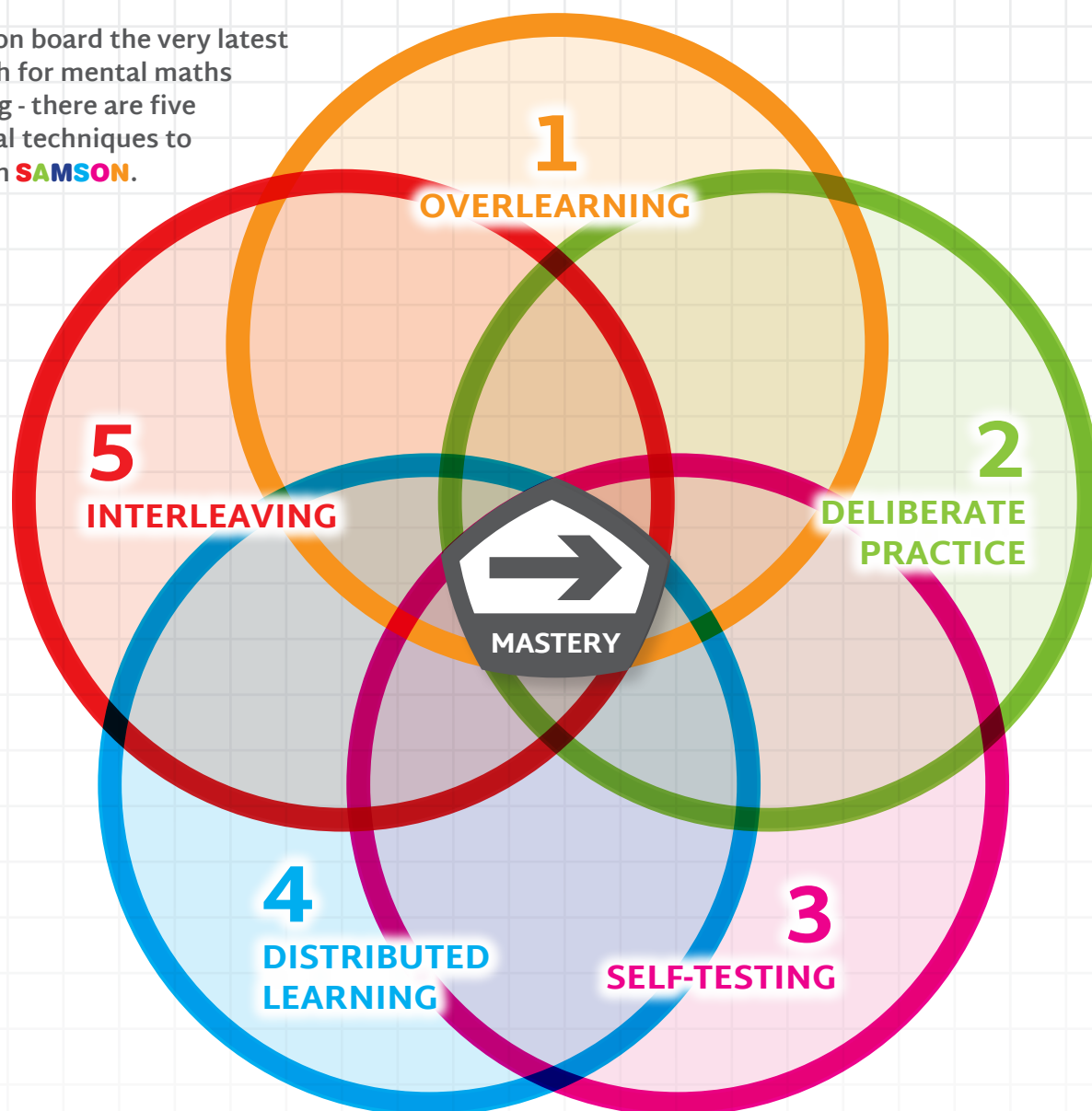
Flipchart Content

The flipcharts have been created for use
on an interactive classroom whiteboard.

<p>Tiny Tim, Boy Genius</p> <p>The Number Bond Expert!</p> <p>strongmaths.co.uk</p>	<p>Hired Hands, Ten and Twenty</p> <p>Best friends to master multiplication and division!</p> <p>strongmaths.co.uk</p>	<p>Y TIM master addition</p> $\begin{array}{r} + 27 \\ \hline \end{array}$ <p>Strong Man the 'Big Guy'</p> <p>Use number bond on my make adding easy</p> $5 + 10 = 15$ $5 + 10 = 15$ <p>Strong Man the 'Big Guy'</p> <p>Use number bond on my make adding easy</p> $5 + 10 = 15$ <p>Strong Man the 'Big Guy'</p> <p>Use number bond on my make adding easy</p> $5 + 10 = 15$ <p>strongmaths.co.uk</p>
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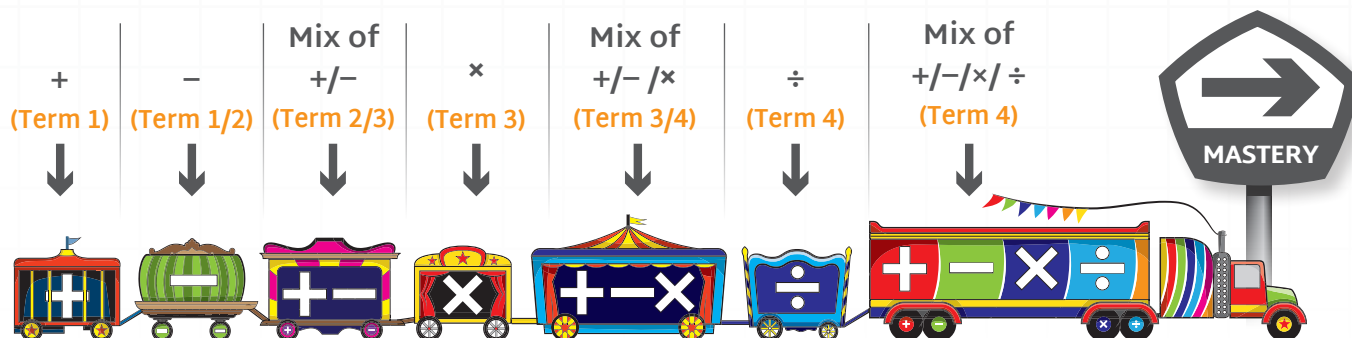
5 Essential Techniques for Mastery

Taking on board the very latest research for mental maths teaching - there are five essential techniques to use with **SAMSON**.



SAMSON Number Wagons

These set off from P1 and make their way through each stage following a distributed learning approach. This example shows how **SAMSON** can be distributed throughout P4 or P5.



All of **SAMSON** comes together in a powerful way

- Children are systematically taught mental strategies as well as number bonds and tables facts through the Mental Flipcharts (MF) / Strip Sheets (SS) and Timed Challenge Sheets (TCS).

Name: _____

①	2	7	+	3	8	=		
②	9	6	+	5	4	=		
③	9	2	-	2	8	=		
④	1	5	3	-	8	2	=	
⑤	1	6	×	7	=			
⑥	1	5	×	1	1	=		
⑦	1	8	×	2	0	=		
⑧	1	9	×	1	7	=		
⑨	6	8	÷	4	=			
⑩	3	4	0	÷	1	7	=	

Time: _____ Score: _____

Mental Strip


Sheets (SS)

go along with each flipchart: →
each strip sheet has the same ten questions that are on the flipchart.



In addition, there are also 5 word problem questions (11-15). →

P7 MF 27 + 38 4P

① **2 7 + 3 8**



⑫ **Andy, the circus acrobat, is paid £85. If he is paid £17 per hour, how many hours does he work?**

SAMSON offers a developmental approach by breaking down mental maths into component parts: specific mental skills are taught and practised at each stage through the school. Children develop secure mental maths knowledge and skills which will help them solve real life mathematical problems.

They are taught and trained to think and to be good 'decision makers'. They have to make decisions, choose when to use a strategy and when to decide which procedure best fits a particular situation. They have to manipulate numbers quickly in their head and choose the relevant and best strategy for a particular question. Calculations are worked out very quickly which enables them to focus on understanding the question.

They take all knowledge and skills learned through **SAMSON** and apply these in independent work such as textbook tasks or real life problems.

- The Word Problems on the Mental Flipcharts (MF) then show how these concepts and procedures can be applied in a real life circus context.

Name: _____ Date: _____

P7 TCS AREA LENGTHS & PERIMETER 11

① Area = 9cm 16cm	② Area = 17cm 12cm	③ Area = 14cm 14cm	④ Area = 18cm 13cm	⑤ Area = 6cm 16cm
⑥ Area = 14cm 15cm	⑦ Area = 18cm 11cm	⑧ Area = 14cm 12cm	⑨ Area = 6cm 16cm	⑩ Area = 19cm 13cm
⑪ Area = 17cm 16cm	⑫ Area = 20cm 35cm	⑬ Area = 20cm 17cm	⑭ Area = 19cm 4cm	⑮ Area = 16cm 15cm

Score: _____ Time Taken: _____

- The mental strategies are linked to Deliberate Practice Timed Challenge Sheets (TCS) in key areas of maths such as area.

Evidence

Comments from pupils:

“ The 20 question sheets have helped me massively especially with number bonds. ”

“ The math challenges and flipcharts have helped with my speed and accuracy. ”

“ In P7 we do a lot of timed strips and I am getting faster and faster. I understand what to do and I can do Big Guy number bond, step 1 step 2, and use best friends 10 and 20. ”

“ I am getting faster at the timed sheets + - x and divide. They are easier now thanks to the Big Guy step one step two and best friends 10 and 20. ”

“ The timed sheets were really good because they helped me improve in my mental maths. ”

“ In P7 maths was hard for me but with Mr Armstrong teaching us steps and different ways to do them, I have began to get quicker and smarter. Doing timed sheets we get smarter and faster. ”

“ I think when we do the maths timed sheets in the morning it helps us get faster and learn our sums quicker. It helps me learn when we do Big Guy number bond and step 1 step 2. ”

“ They have been a massive help because when I first came into P7 I was getting 15/20 in 4mins 30 seconds and I am now getting 20/20 in 2mins 6 seconds. ”

“ Maths is one of my favourite subjects. I have got sharper at maths by doing timed sheets and strip sheets. I now have a faster time and am getting more accurate and much more confident. ”

“ Flipcharts have helped my mental agility: they are getting me to understand and I'm getting better and faster scores. I am quite confident at dividing and multiplying and I use Big Guy, number bond. ”

Transition to Secondary School

Since 2014-15: 70% of the top set (doing 1st year maths) have been from the **SAMSON** school.

Comments from secondary school maths teachers:

“ The **SAMSON** children stick out like a sore thumb. ”

SAMSON
“ children are streets ahead. ”