

Learning our times tables

Carleton Primary School
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Aim: 75% (25/30) of pupils in class P3, will know* their 0-5 and 10 times tables by 30th May 2018.

Subsequent Aim: By 30th February 75% (25/30) pupils will know* the 4 times table.

Fluent recall of times tables are considered an essential prerequisite to success in multiplication and other mathematical concepts (Ofsted, 2010).

Method

Our first step was to agree operational definitions and carry out baseline assessment.

Assessment

*Pupils can correctly answer three random multiplication questions including an inverse multiplication question e.g. $2 \times 6 = ?$ $4 \times 2 = ?$ $2 \times ? = 14$.

- **Green** score 3: Fluent (i.e. answering within 3 seconds) for all questions within a given table.
- **Amber** score 2: Some knowledge but inconsistent in accuracy and/or slow on recall.
- **Red** score 1: Little to no knowledge.
- Any anomalies when baselining noted e.g. finding inverse tricky.

Masters

- Children consistently answering three random questions across all tables are awarded 'Ultimate Master' status (tested once a week for retention).
- Ultimate Masters act as a buffer for the testing process: children must be approved (assessed) by a master before coming to the teacher.

Process Change

- Times table selected was determined by baseline assessment.

Name	x0	x1	x2	x3	x4	x5	x10	Total
Pupil 1	2	3	1	1	1	1	1	10
Pupil 2	3	3	2	2	1	1	3	15
Pupil 3	3	3	3	1	1	2	3	16
Pupil 4	3	3	2	1	1	1	3	14
Pupil 5	2	1	2	2	1	1	2	11
Pupil 6	3	1	1	1	1	1	1	9
Baseline	50%	53%	10%	3%	0%	3%	40%	
On Track	15	16	3	1	0	1	12	0
% On track	50%	53%	10%	3%	0%	3%	40%	0%

In order to make the biggest gain we began with the table that the least children knew.

- We introduced a daily focus on multiplication tables (20 mins).
- Pupil Participation – pupils created their own games and strategies.



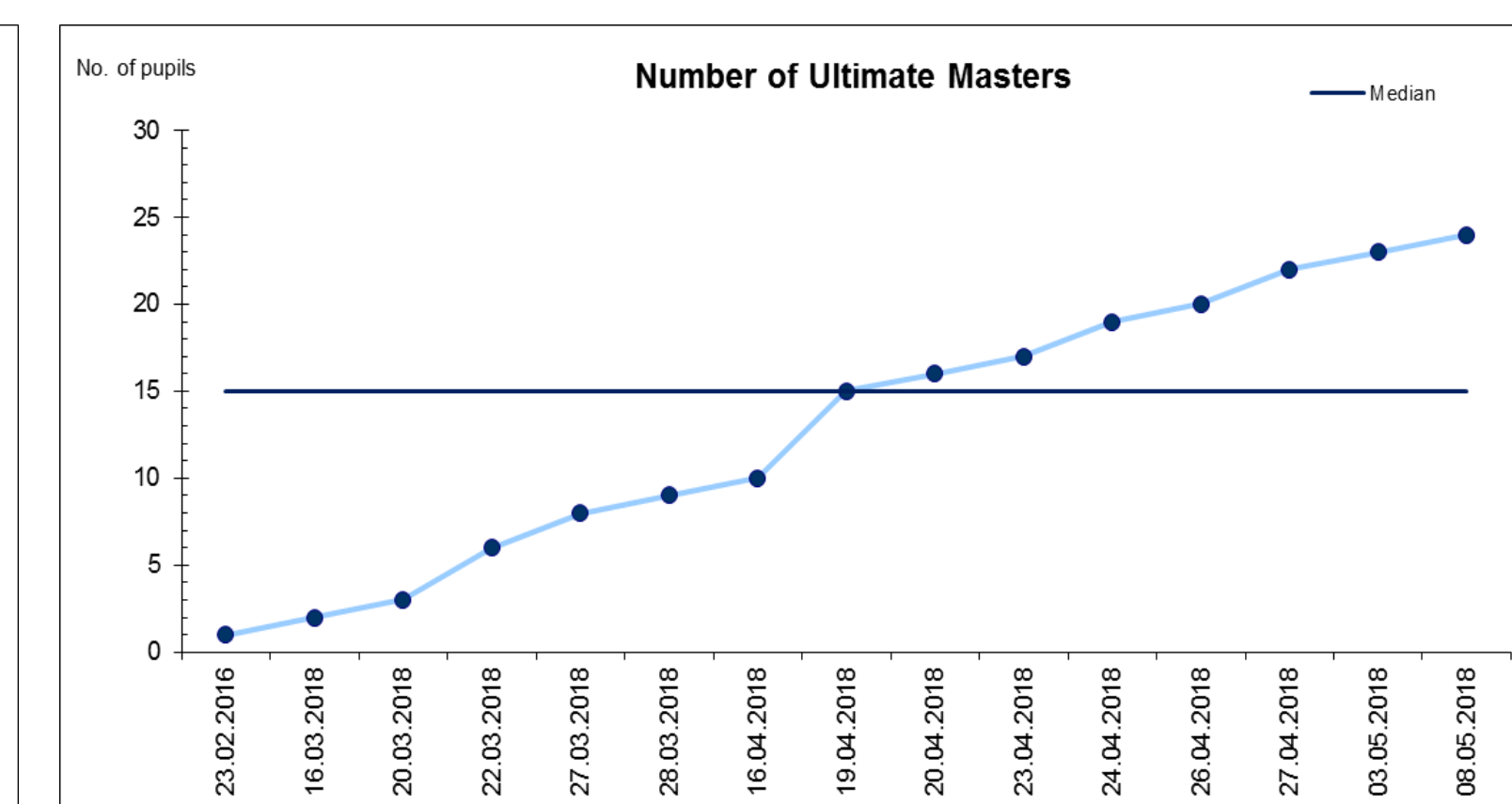
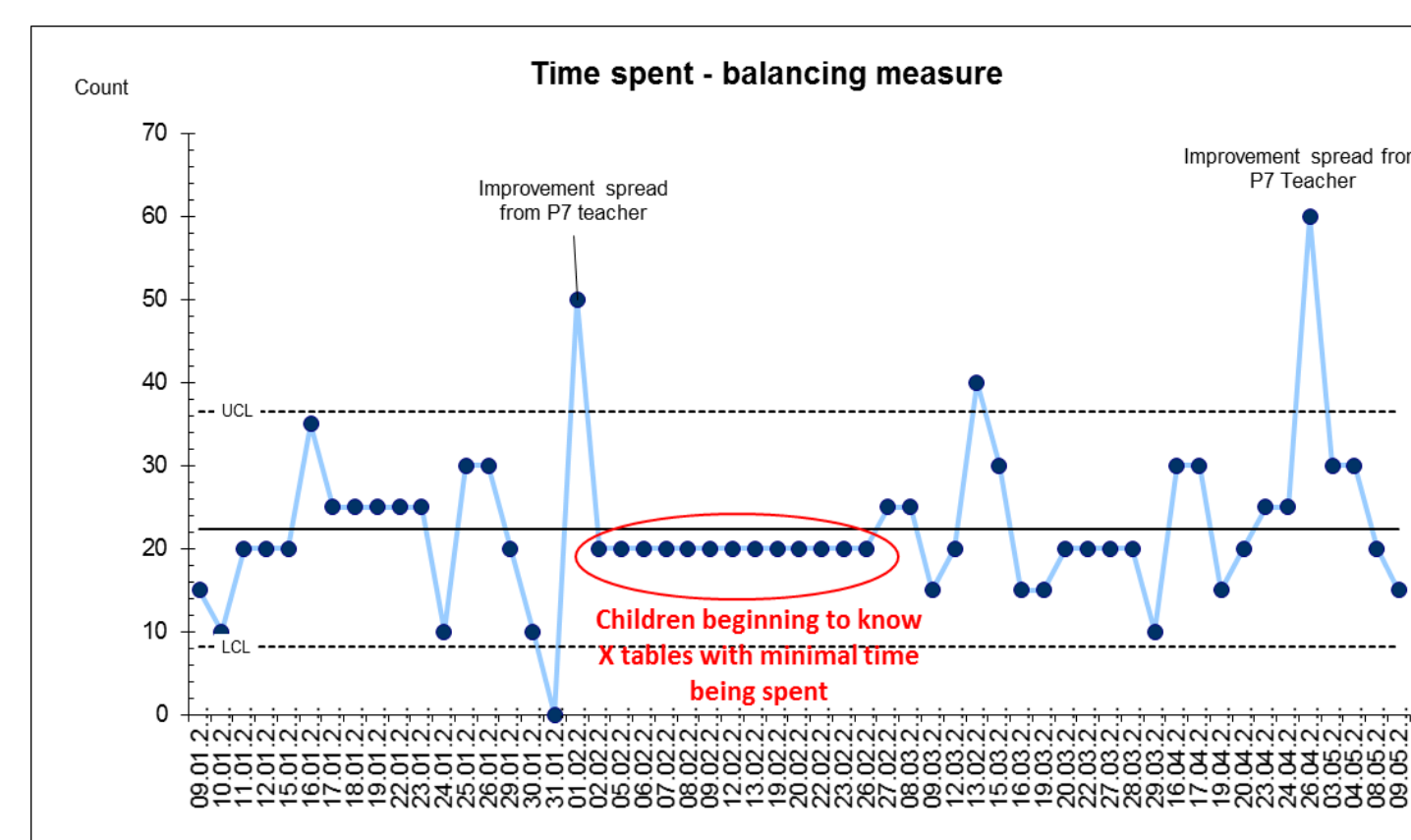
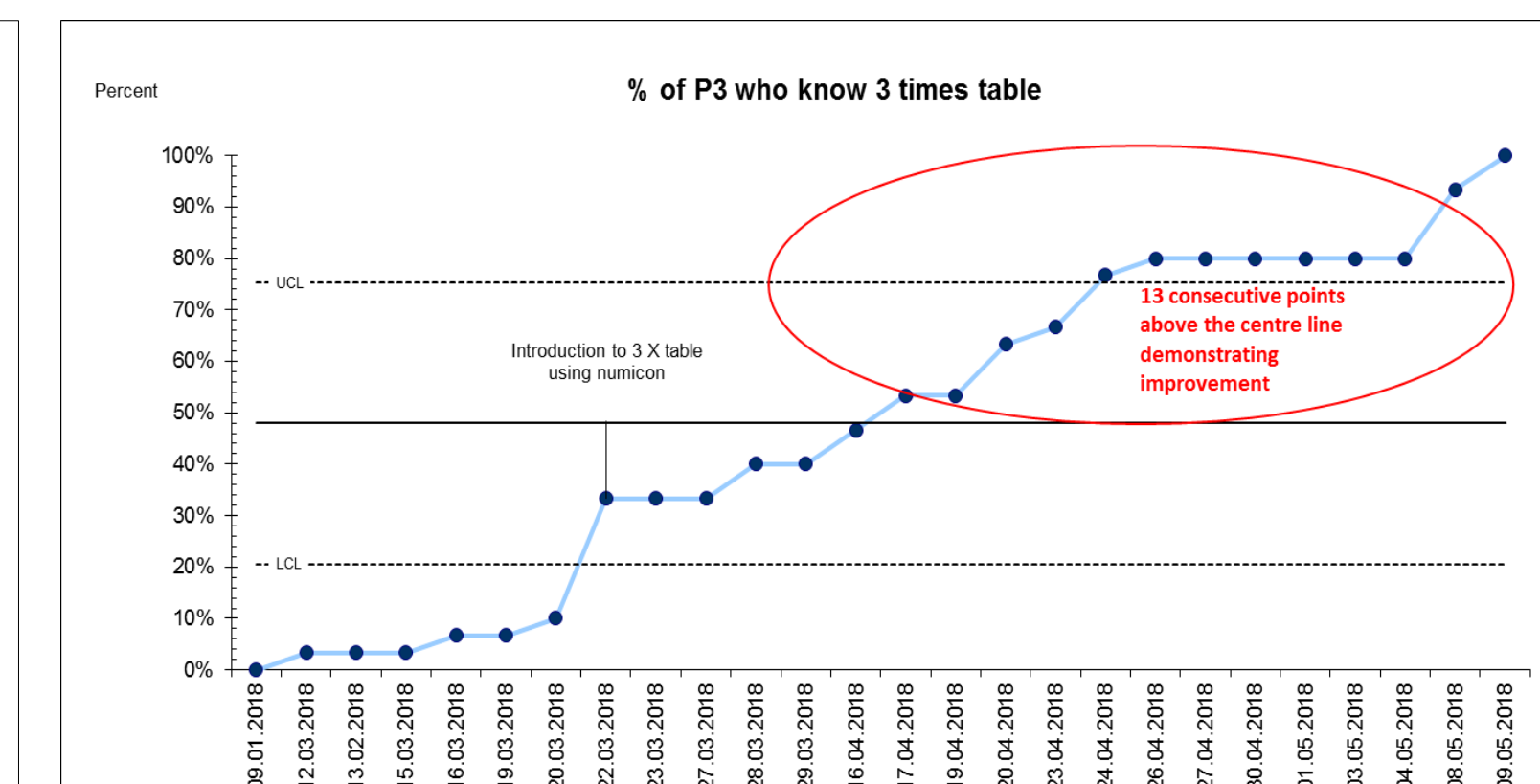
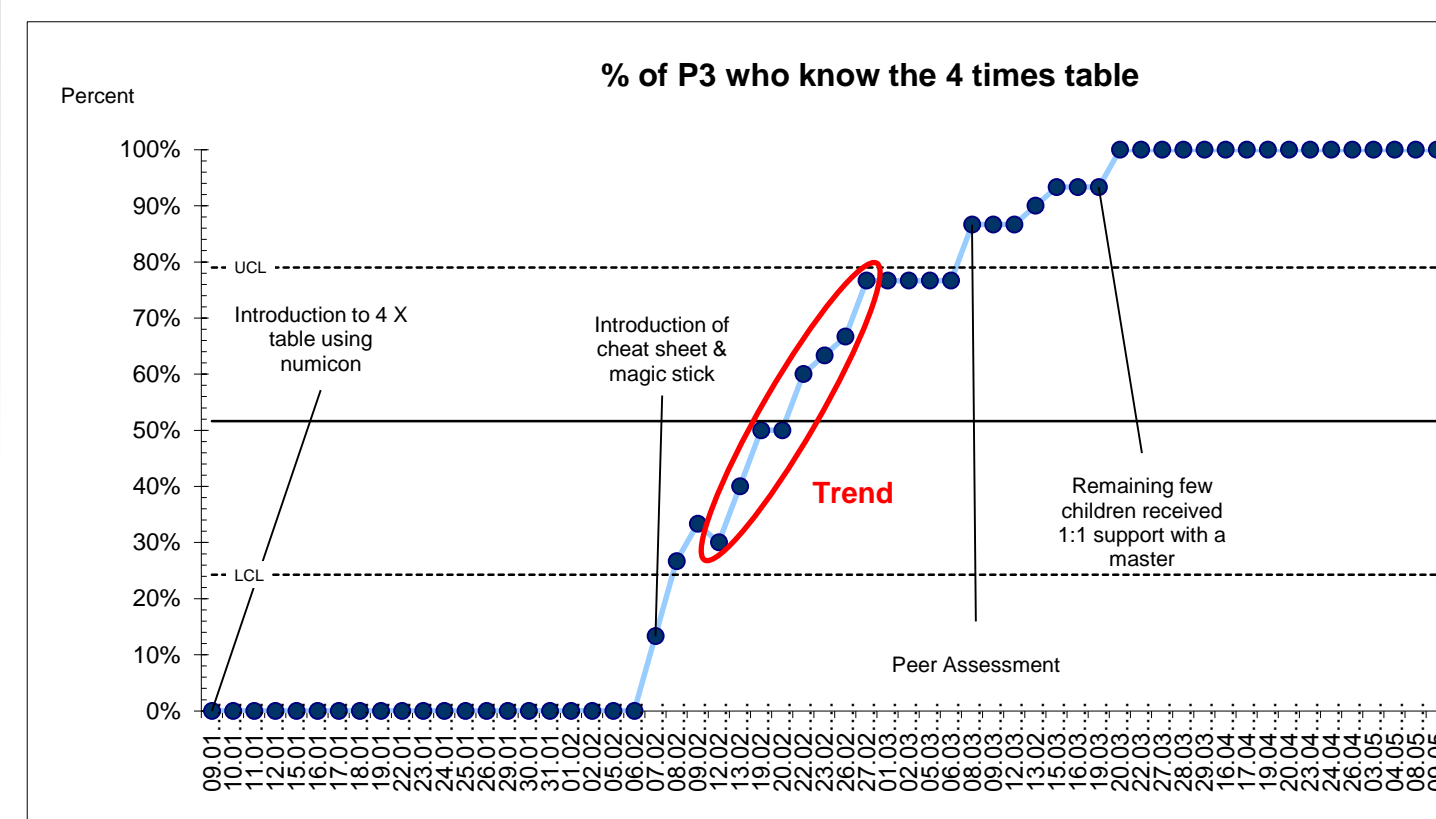
"I quite like doing different games and quizzes, I like it when we cheer each other on and the teacher gives us confidence." (P3 pupil)

- Parental engagement (demonstration at open morning).
- Key strategies: conceptual understanding (numicon, think boards), daily quiz (Plickers), cheat sheets, peer assessment, pupils own games.

Achievements

- Number of P3 children who know their 0-5 and 10 times tables rose from 0% to 75% by the 14th of May.
- Peer support and encouragement promoted a positive learning environment and "can do" attitude among pupils.
- Encouraged creativity and responsibility in the children's own learning.
- Increase in motivation and confidence from all pupils, especially pupils who struggle with numeracy.

Results



"At first I didn't want to do it but now it's making me better and helping with my fractions and adding. I am trying harder to become ultimate master." (P3 Pupil)

Conclusions

- Peer support promoted success and enjoyment.
- Significant increase in percentage of pupils knowing tables after the introduction of the "cheat sheet", first tested in P7 class.
- Correlation between time spent and success – 20 minutes optimum.
- Pupils enjoyed responsibility of their own learning – creating games which supported their learning strategies.

Whole Class Ethos
Enjoyable Challenge

I like helping people with their tables, we share ideas, games and strategies." (P3 Pupil)

Enthusiasm of all
Pupil Lead Learning



"I didn't want to go to school because of times tables but now I enjoy trying to work out the answers and helping other people." (P3 pupil)

Positive Mindset

Key Learning Points

- The daily input is delivered with high energy and enthusiasm.
- Aim high for all! Some children we thought would struggle excelled.
- Ongoing assessment to check for retention is needed.
- P7 teacher modelled intervention ensuring consistency during implementation.
- Children found inverse multiplication challenging.
- **Self regulated learning with children taking responsibility for:**
 - learning process (e.g. creative games, cheat sheet design).
 - their readiness for assessment, tracking progress on Spreadsheet.
 - explore and find a strategy which works for them.