NHS Education for Scotland

Raising Attainment in Numeracy:
Identifying effective approaches to increase pupil engagement and confidence.

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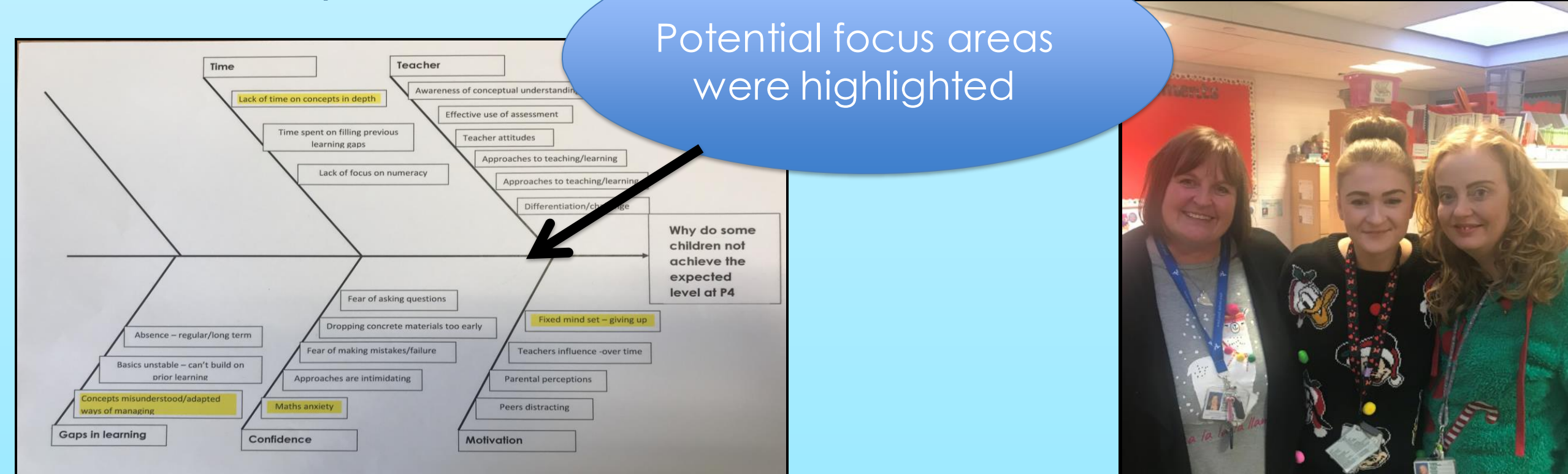
Introduction

Our school data evidenced a dip in attainment for some P4 pupils which could potentially prevent them from hitting key numeracy performance levels. This 'dip' is also reflected within national numeracy data. As a school community we are passionate about ensuring all our children reach their fullest potential hence why this became our improvement focus. The possible reasons for this 'dip' were captured in 'Making Maths Count' (*Scottish Government Sept 16*) (1) document and we used this research and subsequent recommendations as a basis for focussing our improvement plans. Self evaluation led us to focus attention within recommendation 4; '*the use of effective learning and teaching approaches to promote positive attitudes and develop high expectations, confidence and resilience*'. Our data identified a cohort of children at this stage who lacked confidence, resilience or strategies to support their ability to manipulate numbers confidently and they became our focus group.

Aim: By June 2019 the number of children in P4 on track for achieving the appropriate attainment level in Numeracy & Maths will increase from 80% to 93% (6 children)
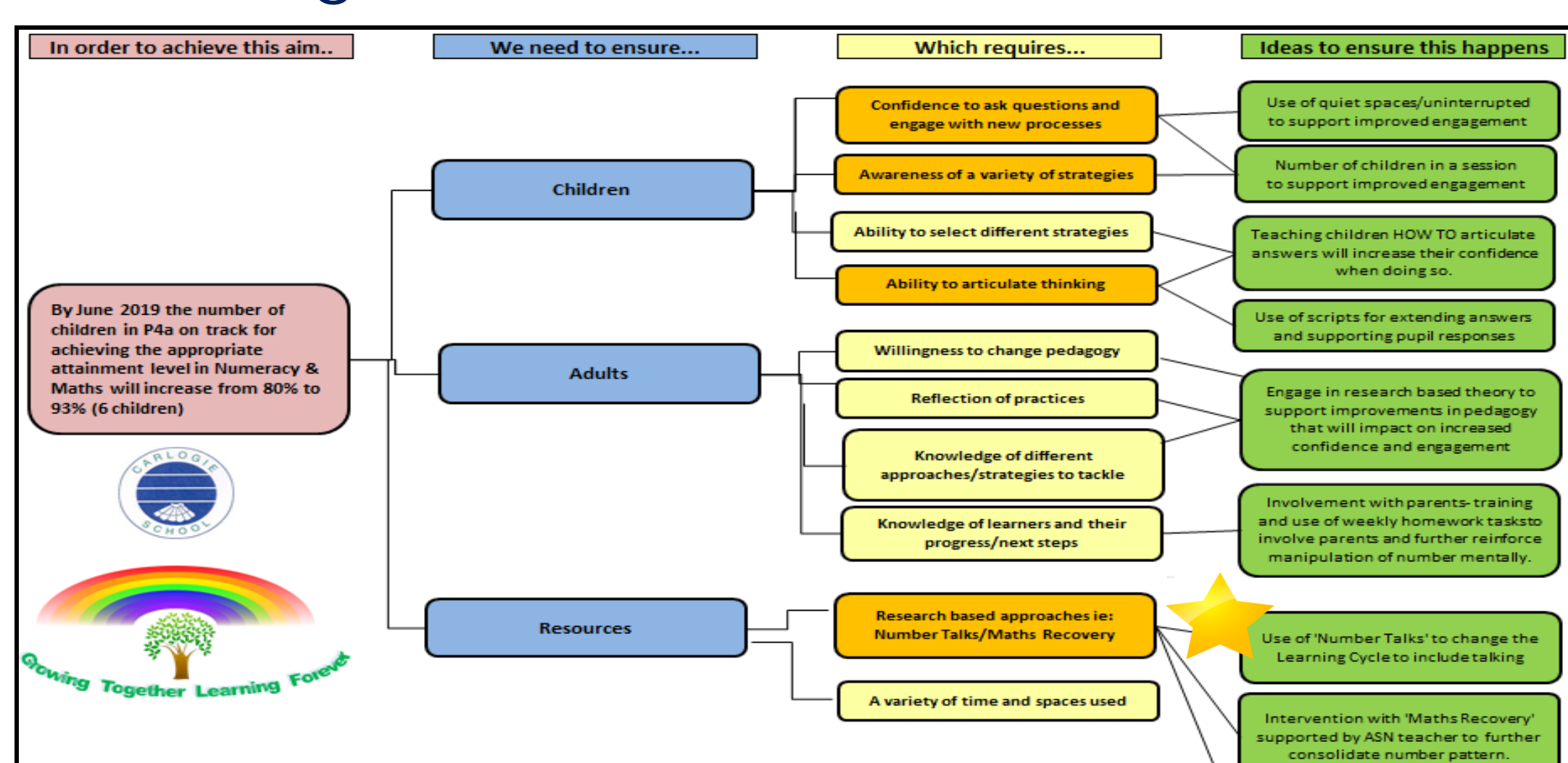
Method

- Project Team identified –Innovators & Early Adopters
- Cause and Effect /Fishbone Analysis used.
  to identify causes/solutions and potential change ideas.
- The team created the driver diagram, change ideas and PDSA cycles following this process.
- Outcome, process and balancing measures were identified.
- Due to the complex system of schools and children both qualitative and quantitative data were gathered to help tell our story.

Potential focus areas were highlighted

Results

Body language during Number Talks sessions

Number of numeracy strategies used during each session

Percentage of correct answers

We identified shifts in our data based on these two process measures and one outcome measure. Our results show us we now have a child who has improved body language, has a selection of strategies to use and is improving with her rate of correct answers. Our high-level outcome measure in not showing change yet because we are still working at small scale.

Process Change

Our Driver Diagram identified a number of change ideas which were trialled through PDSA cycles focussing on just one child initially (starting small). The most effective approach was spending quality and focussed time regularly 'talking'(2)about numbers and strategies. Due to early indication of success, this was the change idea ⭐ we then continued to gather future data on.

Conclusions

The Improvement Model really helped us to confidently capture what actually works! The project is now being scaled up in a different class with similar results. We now recognise the importance of starting small allowing us to clearly identify which changes were leading to improvement.

Teacher's thoughts
I can easily spot gaps in learning. I am watching learners' confidence soar. Previously disengaged pupils are switched on and excited to share.

Children's thoughts
It helps me to be faster. It gives me thinking time and I have new strategies.

I am more confident and I don't just say what other people say.

I want to do harder sums!

Key Learning Points

- Start as small as is possible – find out what is/isn't working and why
- Regularly review and analyse - look for success then scale up.
- Recognise the value of quantative data when dealing with complex school systems. This provided us with a lot of rich learning.
- Move on swiftly with PDSA's adopt, adapt or abandon but keep moving!!
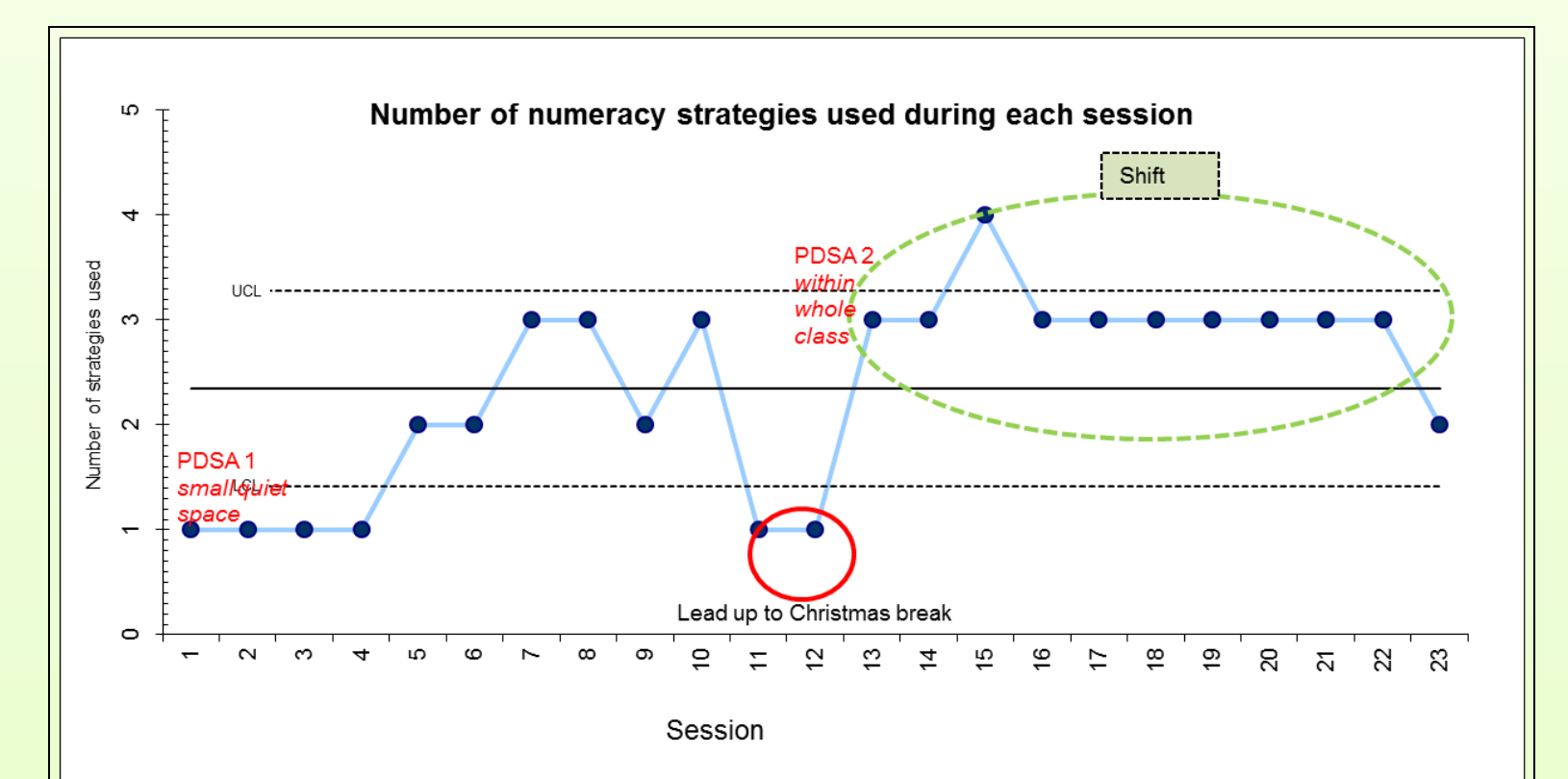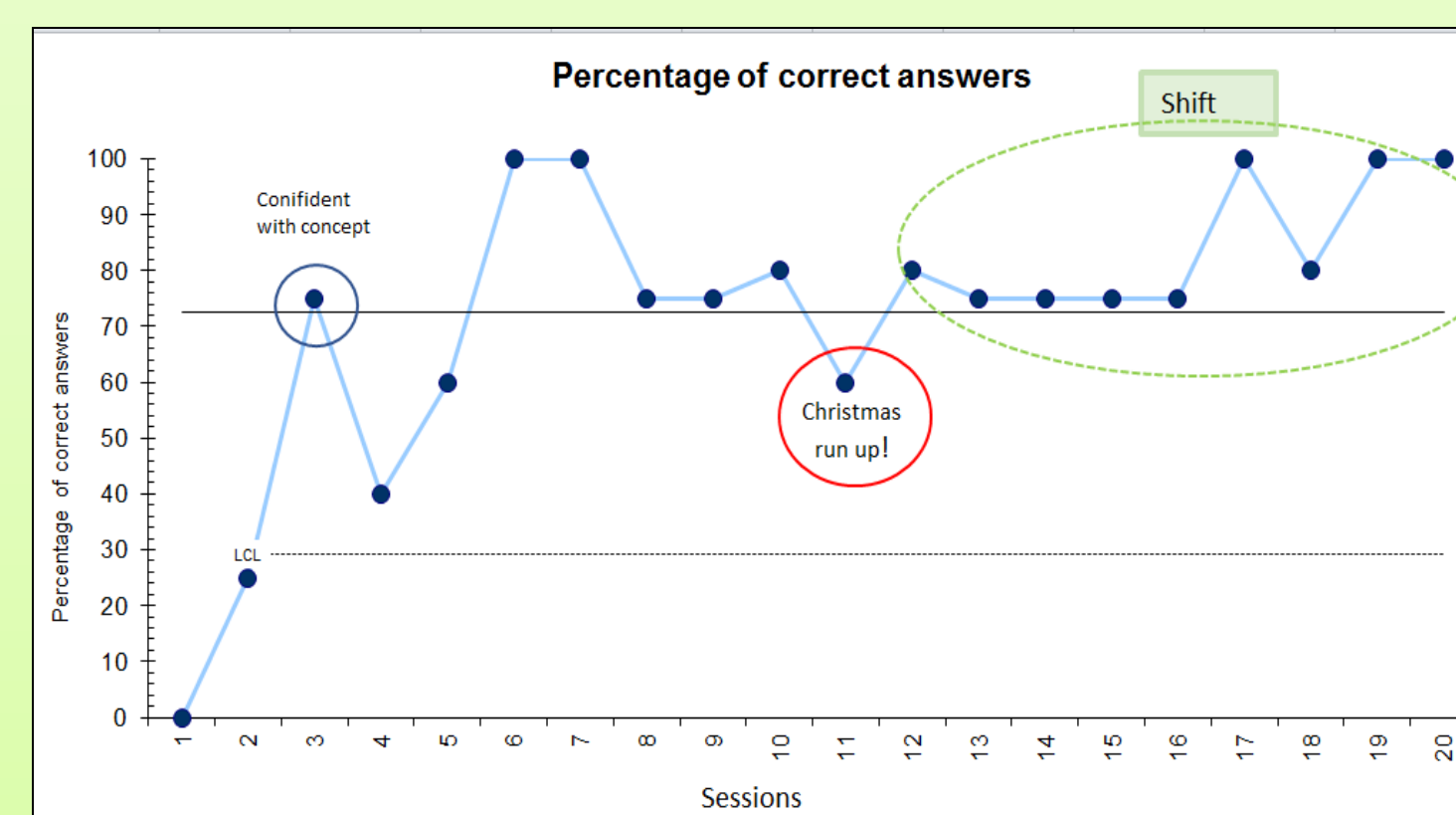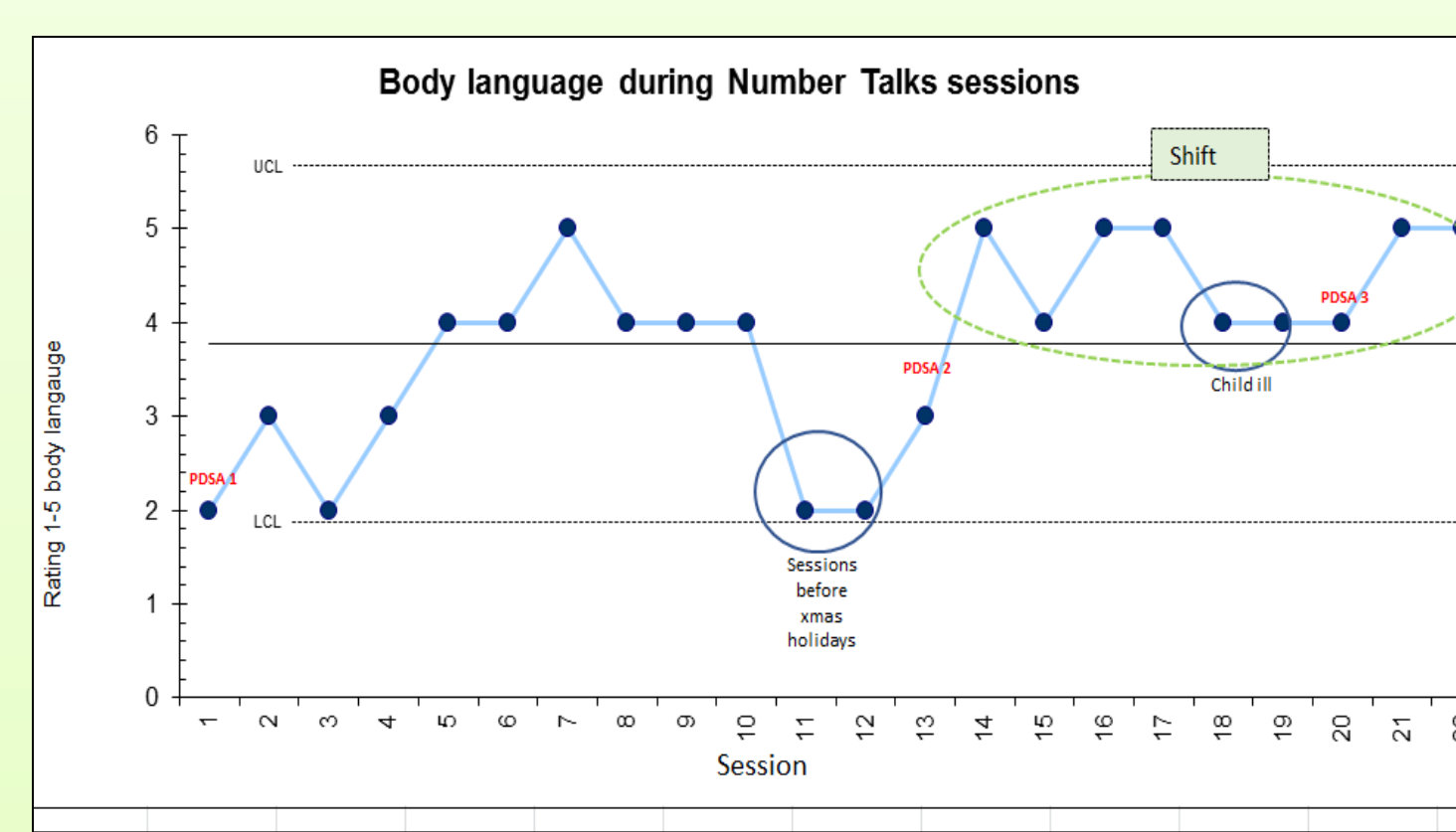
Achievements

My confidence in planning and executing improvement projects has increased in particular around developing measures, baselines and charting data. I like Excel now!

References:

1 Making Maths Count – Scottish Government (September 2016)
2 Making Number Talks Matter – Humphreys and Parker (2015)

Next Steps

- Share my QI learning with staff in school to support their individual practitioner enquiries. Leadership team to trial using methodology for an aspect of their remits.
- Scaling up to use with older children with a view to spreading across the school.

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