

Lesson Study example use by a SENCO

Case pupil:

Jane a year 3 girl (age 8) identified as having Special Educational Needs (SEN Support)

Used LS to enable LS team to identify barriers, address concerns and raise achievement.

What teachers expected to gain from LS:

1. An understanding of Jane's learning approach
2. At least one strategy to support her independent learning

Team involved:

SENCO (also a class teacher), class teacher and teaching assistant.

Teacher was chosen as already had a well-established collaborative relationship with SENCO, with mutual respect and trust. A specialist maths teacher was consulted during LS.

<i>LS Steps</i>
1. Decide case pupil and what the focus/goal is.
2. Decide the team
3. What knowledge will inform process?
4. Choose research question
5. Set timeline
6. 1st review and planning meeting
7. 1st research lesson
8. Pupil interview
9. 2nd review and planning meeting
10. 2nd research lesson
11. Pupil interview
12. Is it 2 or 3 cycles?
13. Evaluate LS

Research question:

Is LS effective in identifying barriers and addressing concerns in order to improve access to age-related number lessons for an individual pupil designated as having SEND?

Ethics:

Parental consent for Jane to be the case study child was obtained.
Also, consent sought from class teacher and teaching assistant

Timing of LS activities (review and planning meeting; RP & research lesson; RL)

From mid-June to mid-July

RP1 +8 days RL + 6 days RP2 +3 days RL2 + 10 days RP3

LS Cycle One

The team decided that their aim was to enable Jane to access an age-related number lesson, with the focus on using the formal written method (FWM) to solve addition calculations.

LS research question for Jane:

What teaching can enable J to access the year 3 age-related number lesson, with the focus on using the formal written method?

The class learning outcome was to use FWM to solve addition calculations.

The lesson context was mixed ability, whole class teaching, splitting into groups depending on pupil level.

Teaching approach involved moving from concrete to pictorial to abstract through practical and visual representations using base 10. Sugar paper, pens and base 10 paper available.

Research lesson planning			
Research lesson timing	Teaching activity	Jane activity	Observation focus
9am	Modelling method	On carpet with others	J's attention, focus; any contribution?
9.15	Instructions	Split into group based on self-assessment	How J self-assess?
	Further model and practical activity (use scaffold with questioning)	J stayed on carpet; practically involved in model activity	What is her understanding? Where are any mistakes?
			Independent work / looking to teacher?
9.40	Monitoring pupils' learning	Answer addition question	How applies method independently?
9.50	End		

RL expect and observe template			
Lesson stage	1	2	3
How expect J to respond	Little contribution Paying attention Focused	Opt to stay on carpet Digits in wrong column Place value incorrect	Similar to practical element; Try to work independently
How J observed to respond	Faces front Puts hand up Unable to answer Does not chat to partner	Stays on carpet; Correct place value for practical part; Uses fingers to count with; Made errors including counting from 0	Messy; Digits round wrong way; Mostly in correct column; Errors made from counting

Pupil interview after RL1:

J said she liked the counting. But unable to verbalise answers to other questions. J did point to number in tens column, possibly showing that grasped crossing the tens boundary. Also unable to answer what teaching needs to change question.

Summary and analysis of RL1:

Jane showed that she understands:

- FWM layout and place value

But J could not:

- Add within 20
- Hold numbers in mind when thinking about FWM.

Analysis: Jane's errors were not coming from misconceptions of place value or the FWM, but rather from errors made in adding two 1-digit numbers. From previous assessment, we knew that Jane was able to add two 1-digit numbers when this is the only thing being done. Through further discussions with specialist teacher, we felt that it was the combination of adding two 1-digit numbers and the FWM that was the barrier to progress. More specifically, this involved an overload of working memory issues.

Further knowledge that was useful:

Working memory is a limited capacity system that holds information for a brief period of time while simultaneously manipulating it (Baddeley & Hitch, Mathews). Research shows strong links between working memory and mathematics performance.

Concluded that Jane's ability to manipulate information was an area of concern that needed to be addressed.

LS Cycle Two:

The objective for the second research lesson was for Jane to be able to use the FWM to subtract a 3-digit number from a 3-digit number.

Teaching activities: Initial recap of number facts to reduce effort of working memory using a subtraction grid.

Research lesson timing	Teaching activity
10.45	Pre-teacher number facts)
10.55	FWM recap teacher to set out FWM to reduce load on working memory & subtraction of single digits
11.10	Use grid to support independent work

RL expect and observe template			
Lesson stage	1	2	3
How expect J to respond	Little communication, watching class teacher; unsure of her answers	Understand reasons for method	Keeps going after two questions; using grid with some success
How J observed to respond	Reluctant to give answers; Related to confidence; Did not talk	Explained with limited words how to use FWM; Knew which digit needed to be subtracted	Stopped after two questions to check; made fewer mistakes; success with grid.

Pupil interview after RL2:

What she enjoyed: she pointed to self-assessed ticks of her work.

What she learned: how to count and get it right.

She suggested that grid helped her do both (subtract and use FWM)

Summary and analysis of RL2:

Jane was comfortable using the subtraction grid and independently used it to complete a series of subtraction questions. Jane got 7 of the 8 questions right in RL2. (compared 2 of 9 in RL1).

Though Jane’s verbal skills were weak and her communication with adults is limited, during the pupil interview, she pointed to the subtraction grid as a resource that she found helpful. Jane also communicated with the class teaching assistant that she was really happy that she had got so many questions right.

The initial idea that the barrier to Jane’s learning was place value was incorrect.

In post-research lesson meetings, the team based their discussions on observed evidence and changed the way they planned the next lesson. The results were rewarding: by reducing the load on working memory, Jane was able to complete

Jane continued to use the subtraction grid (or similar resources) in lessons other than those observed, and the class teacher reported that Jane was consistently getting more than 60% correct in lessons where she had previously needed one-to-one support and would get only 10-20% of the answers correct.

Lesson study evaluation

What impact LS had on pupil learning; what was learned about LS?

When the pupil is able to use resources to remove a step from a more advanced procedure, the student is able to access the relevant curriculum. The load on working memory is reduced and the student can feel a sense of achievement in line with their peers.

Impact on practice and future teaching

Though not reducing the need for additional support, intervention or daily practice for automaticity of number facts or understanding the concept of number, providing pupils with resources that reduce working memory load will enable pupils to access curriculum in line with peers. And hopefully reduce the need for further catch up later on.

Reflections on Lesson study

Discussion with specialist maths teacher about best resources to use.
Working together was very positive. Jane can be supported long term.