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Improving subject pedagogy through Lesson Study

Handbook for leading teachers in
mathematics and English



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Foreword

The report 'How the world's best school systems come out on top' by Sir Michael Barber (McKinsey, September 2007) identifies some key features that the most successful school systems share. A common feature in the area of continuing professional development was how all the systems managed to:

- ensure headteachers focus their energies and time on prioritising the improvement of teaching and learning;
- enable teachers to learn from each other – in real classrooms and with the children they have responsibility for teaching;
- develop classroom practices which demonstrably work, and innovative ways of improving them further.

One of the three examples of this approach cited is Lesson Study.

Lesson Study, which has its origins in Japan, is a model of professional development where a group of teachers collaboratively plan, deliver, observe and discuss lessons that have a particular pedagogic focus often related to 'difficult' aspects of the subjects or focused on the learning of particular groups of pupils. In his report on the teaching of mathematics in primary schools (May 2008) Sir Peter Williams identifies Lesson Study as a key professional learning model for improving mathematics teaching. This approach to coaching is becoming increasingly well embedded within the work of LAs and schools, and through the work of the National Strategies, leading teachers and consultants.

This booklet for leading teachers draws on research carried out in England since 2003 and builds on the experiences of a two-year national pilot and roll out in primary schools from which key messages can be extrapolated for secondary schools. Lesson Study works because it is a very clear deliberative process. It builds upon **joint assessment** of 'case pupils' and it sets out clearly how to use these assessments to assist in joint planning of **high-impact pedagogical approaches** such as guided writing or talk for mathematics. These are **planned, taught, observed and jointly evaluated** by the Lesson Study group – focusing on the learning of the pupils they are responsible for teaching. The result is a shared view of how to personalise teaching, based on actual practice, and a widening professional repertoire for the teachers involved.

Used wisely, as part of a whole-school approach to improving classroom practice led by senior leaders and supported by a leading teacher, Lesson Study has the potential to drive focused improvement in teaching and learning in English and mathematics and consequent improvements in pupil outcomes.

Clive Bush

National Director

National Strategies, Secondary

Introduction

One of the approaches for in-depth work with schools that leading teachers in mathematics and English will use is **Lesson Study**.

This booklet is a step-by-step guide on how to use **Lesson Study** to **develop** and **refine** teaching techniques. It has been prepared to support the work of mathematics and English departments working as part of the Leading Teacher Programme in secondary schools. It draws on successful practice developed in a similar programme based in primary schools.

The booklet contains information about:

1. getting Lesson Study going in school;
2. planning, teaching and analysing the study lesson;
3. involving pupils in the process;
4. distilling what the participants have learned, how practice has been improved and how to pass it on to others.

Lesson Study is a professional learning process. It works because it focuses on the **learning** and **progress** made by children as their teachers develop specific pedagogic techniques designed to improve a particular aspect of teaching and learning that they have identified within their subject area.

Lesson Study is a model for collaborative classroom professional learning where:

- two or more teachers work together, developing practice in the classroom, focusing on the needs and learning of real pupils and trying to solve a teaching- or learning-based problem which is affecting pupils' progress;
- teachers are engaged in developing a teaching technique which is designed to improve a specific aspect of learning for identified pupils;
- teachers keep a record of what they learn and pass on the practice knowledge which they gain to others – for example, by coaching, leading a professional development meeting or providing a demonstration lesson.

Lesson Study has been used successfully in the UK to improve teaching techniques and pupil progress in core subjects in primary and secondary schools and to develop broader pedagogic approaches such as Assessment for Learning.

Lesson Study is very good value for money if opportunity is taken for its outcomes to feed into the practices of those involved in the study and others in the school.

Some headteachers have created dedicated professional learning time when Lesson Study groups can plan and analyse their lessons; this is time normally allocated to professional development and management. Some headteachers have built Lesson Study into their school teaching and learning policy by creating a staff professional learning policy. This gives teachers and others entitlement to professional learning and CPD opportunities which include the models now recognised as having most impact on classroom practice.

Leading teachers can develop professional learning through Lesson Study in departments they support by establishing and working with a Lesson Study group, and using the Lesson Study model as a platform for in-school coaching.

Using leading teachers to support and develop professional learning from Lesson Study

A leading teacher can play a distinctive role in making Lesson Study effective by:

- helping to establish and focus the work of Lesson Study groups in the department;
- demonstrating a technique (such as guided writing in English or problem solving in mathematics) in the school immediately prior to the beginning of a Lesson Study cycle;
- joining a Lesson Study group to support the planning of a study lesson and contributing ideas and suggestions;
- working with a Lesson Study group to discuss the planned study lesson – contributing to suggestions about how the pedagogic technique could be developed;
- joining a study lesson as an observer (with equal status) and participating in the post-lesson pupil interview and discussion;
- following up the dissemination to other staff, for example by offering further in-class demonstration, coaching and feedback on planning;
- sharing the learning from a Lesson Study cycle with other staff and helping initiate new Lesson Study groups.

Understanding the Lesson Study approach to collaborative improvement

What is it?

Lesson Study consists of a detailed study or examination of the practice of teaching. The process was developed in Japan and is built on the premise that the best way to improve education is to 'get teachers together to study the processes of teaching and learning in classrooms, and then devise ways to improve them'¹. Teachers who engage in Lesson Study undertake a cycle of activity together intended to investigate and improve a specific aspect of classroom technique so that pupils' learning and progress improves because pedagogy is better designed and delivered.

1. Extract from *Lesson Study: A Japanese Approach to Improving Mathematics Teaching and Learning (Studies in Mathematical Thinking and Learning)*, by Fernandes, C. and Yoshida, M. © Lawrence Erlbaum Associates, Inc. Used with kind permission.

How does it work?

Teachers in the Lesson Study group work together over a period of time and in the following phases.

1. Group agreement as to the intended focus of the Lesson Study

What is the aspect of classroom technique they want to investigate and improve? The study lesson provides a valuable opportunity for a department to identify a challenging aspect of teaching and learning that would gain from a detailed investigation by a supportive, collaborative group with the help of the leading teacher. Examples might include how to:

- demonstrate skills and processes effectively to the whole class;
- focus on the needs of a small guided group while ensuring the rest of the class learn productively through independent activity;
- model explaining and justifying in mathematics or how to teach text coherence and cohesion in writing;
- purposefully engage a 'traditionally' underperforming group in the class.

2. Plan together

The group considers the learning needs of the class to be taught and collaboratively designs an innovative lesson or sequence of lessons that uses the techniques to be focused upon. The planning is detailed and specifies resources, teaching approaches, intended pupil activity, anticipated pupil responses and outcomes.

3. Teach the lesson and observe the learning

One teacher agrees to teach the lesson and the rest of the group observes closely the way pupils react, how effectively they learn and make progress and how well the design of the lesson meets pupils' needs and engages them in learning.

4. Review the lesson and its impact on the pupils

Following the lesson, the group meets to review its effectiveness and share their observations about its impact on pupils' learning. They consider what worked and what needs to be adjusted, and what has been learned about the pedagogical approaches being focused on.

5. Revise and adjust the lesson

As a result of the review, teachers in the group agree how to refine and adjust the lesson or lesson sequence and what they hope to achieve by doing so. They re-plan with a different class or group in mind. The Lesson Study is then repeated with a different member of the group teaching and with a different class or group of pupils. This second lesson is again reviewed for its effectiveness and what has been noticed about its impact on pupils' learning.

6. Extrapolate and share findings.

Finally, the Lesson Study group considers what has been learned and understood from the process and agrees ways to share these findings more widely within and beyond the department.

Getting Lesson Study going in school

Choose a group of teachers

- A group of three including the leading teacher works well.
- Choose teachers who are likely to enjoy the challenge of starting up a new professional learning approach in the school.
- Consider including at least one member of the school and/or department's leadership team and aim for a mix of teaching experience.

Hold an initial meeting

The group should set out expectations and ground rules which enable people to feel free to take risks and not feel they are under scrutiny. In a Lesson Study all members of the group are of equal status – as professional learners with the leading teacher acting as a practitioner/adviser.

In the meeting, they should aim to:

- set some parameters which are based on identified departmental priorities for improvement (for example, to develop boys' writing using shared and guided techniques or addressing misconceptions in mathematics drawing on practice from the Ofsted report 'Mathematics: Understanding the Score');
- agree common formats for planning, observation or analysis – examples you can use are included later in this booklet.

Prompts for Senior Leadership Team (SLT): resourcing the process

- Draw on the resource of the leading teacher as the catalyst to promote collaboration in the department.
- Give the teachers dedicated time (an hour at least) to plan the first study lesson.
- Protect their time on the day of the study lesson and make sure they can have a post-lesson discussion within a day or so of carrying out the study lesson.
- Take an active interest in how the process is going.
- Make sure they have dedicated opportunities to share what they have developed with other colleagues – for example, a staff meeting, or a coaching opportunity.
- Use these members of the group as Lesson Study champions in the school to convene and develop the next Lesson Study groups.

Planning the first study lesson and identifying the case pupils

In the planning session, the group will need to cover the following ground (draw on the diagram on page 12):

1. **Agree the class** for the first study lesson.
2. **Specify the focus** that you wish to develop in the study lesson. Discuss and agree what aspect of teaching needs improvement (mathematics departments may wish to draw on material in the annex of the Ofsted Report – ‘Mathematics: Understanding the Score’).
3. **Specify the learning objectives and pupil outcomes** to be achieved (building in a degree of ambition and ‘difference-making’ compared with current approaches). Write these out in full and in detail to help observers focus on how pupils are doing and what you anticipate they should achieve. Use the Framework for secondary English or mathematics and the linked APP assessment guidelines to help in the planning. Make a note of how you will tailor your planning to fit the needs of the teaching group.
4. **Plan each stage of the lesson** with particular attention to the sequence where you will use the teaching technique you are refining or planning. Note down what you hope the response of each case pupil will be. What will each pupil do at this point to evidence their progress?
5. Identify as carefully as you can what resources will be used and how, what you will write on the board, and indicate timings for the lesson stages.
6. For this stage to be productive, teachers will engage with detailed discussion at subject-knowledge level as well as defining an appropriate subject-specific pedagogy.
7. **Identify some particular pupils** for observers to focus their attention on (referred to here for convenience as the ‘case pupils’) They might all be struggling or underperforming pupils or they might reflect a range of different groups of learners in the class, for example pupils who are making good, average or below-average progress in an aspect to be covered by the lesson. Pupils’ APP assessments might be a good source of information to inform this choice.
8. **Agree which teacher** will focus their observations on which case pupil(s). It helps to have some rules to ensure you don’t all gather data about the same pupils and miss others.
9. Agree a feedback and discussion time as soon as possible after the lesson.

Note: An example of a Lesson Study planner is provided in Annex 2 on page 13. It can be useful to enlarge it to A3 for use. Each Lesson Study group member can then use this as an observation annotation sheet and the basis for the post-lesson discussion.

Teaching and observing the first study lesson

1. Make sure that observers (and the lesson teacher) know as much as possible about the case pupils to be observed and where they are in their learning. You can make reference to the APP materials on the secondary Framework to help in making judgements. It is really important that the group clearly identifies what they want pupils to be able to do by the end of the lesson, and what they will be looking for as evidence of this.
2. Because the study lesson is **jointly planned**, it is **jointly owned** by the group. This means the focus for the observers is less on the **teacher** and more on the **learners** and particularly on the case pupils.
3. Observers can start each observation as if 'zooming in' on the case pupil and then 'panning back' to allow a bigger group or the whole class to come into frame. They should try to capture the case pupils' responses at different points in the lesson – and how they match or differ from what was predicted at that stage. They should be sure also to note any critical incidents and record any common patterns on the observation sheet, (for example all the case pupils misunderstand something in the same way) – preferably with a reference to the time against each annotation.

At the conclusion, observers look for the evidence of progress for case pupils against what was planned and the extent to which the lesson's planned objectives have been achieved. They can also assemble some initial thoughts to feed into the group's reflections.

- What are key points for the next lesson for the case pupils, their groups or the class?
- What might pupils be asked in a post-lesson interview?

Interviewing case pupils after the lesson

Lesson Study groups interview the case pupils after the study lesson to get their perspectives on what worked for them, what they felt they learned, and how they think the lesson could be changed in order to make it work even better. The interview should be short (no more than five minutes) and can be done with all the case pupils in a group, or individually.

The interviews need to be conducted at the first opportunity – ideally at the end of the lesson. It is useful to try to capture some of the pupils' exact words in the notes.

Possible questions for a post-lesson interview with the case pupils

This lesson was about...

- What did you enjoy most about that lesson?
- What did you learn?
 - What can you do now that you could not do before?
 - What can you do better?
 - How is it better?
- What aspect of the lesson worked best for you?
- What aspect did you find difficult or challenging?
- If the same lesson is being taught to another group, what would you change? Why would you change that?

The post-study lesson discussion

The group will need at least 45 minutes as soon after the study lesson as possible. Leaving it for more than 36 hours means much is lost.

One person should be chosen to chair the discussion and to make sure that the key points are recorded and another to keep a record of what is agreed – an example of a form for recording the post-lesson discussion is included in Annex 3 in page 14.

The chairperson should ensure that all points made or questions asked should start with an observation about one of the case pupils. For example, 'At that point I observed pupil B writing "xxx" on his own. This suggested to me that...' Or, 'When the guided session began pupil A moved to sit with pupil B; I wonder if...'. This is an important feature of Lesson Study, as it keeps the focus on the **learning** before moving to the **teaching**.

All Lesson Study group members should contribute.

The chairperson should keep the discussion focused on:

- what the focus of the lesson was and how the planning supported developments for this focus;
- what was planned for each pupil to learn;
- what actually happened;
- what accounts for any differences between these;
- how much progress was made by each case pupil;
- what aspects of the teaching technique could be revised to improve the progress of each pupil;
- what might be considered the next time this teaching approach is tried by members of the group;
- what a revised lesson plan will look like;
- what is worth sharing with colleagues.

If the opportunity arises, the group will agree to review and revise the lesson plan, while maintaining the same lesson focus but taking on board the reflections gained from the first teaching session. An ideal situation is for the group to teach the lesson again with a different but parallel class. A more practical solution is for each member of the Lesson Study group to teach the revised lesson with one of their own classes.

Formally sharing the outcomes with others

Ahead of the study lessons, the group should identify with department and school senior leaders what opportunities there should be for teachers in the group to share with colleagues what they have done, learned and refined – especially in the key teaching technique being developed. If people know in advance that they will have to share their findings with others, then they will bear this in mind throughout the proceedings. This helps the Lesson Study group keep its thinking and findings clear, more useable and replicable by others.

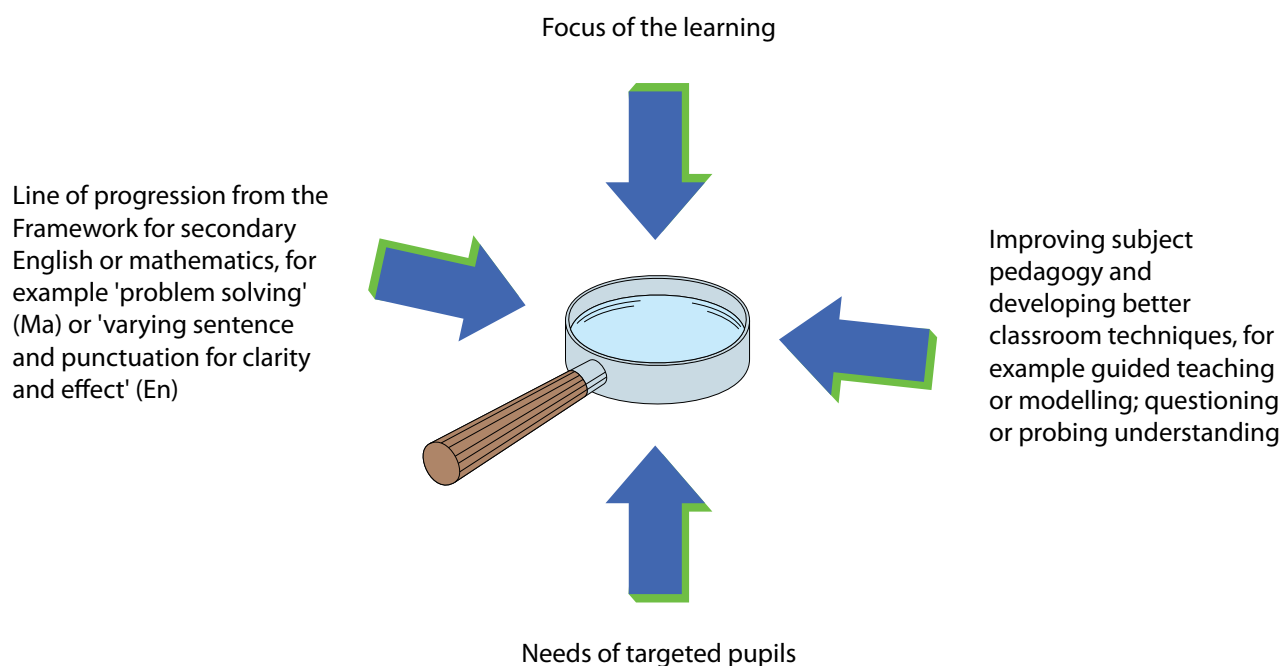
Video clips of the study lessons and digital photos embedded in PowerPoint presentations are a popular way of conveying lesson practice and processes. (You will need to ensure you have a school policy in place on the use of video and photos.)

Opportunities could also be arranged for members of the Lesson Study group to work with other teachers in order to help coach the pedagogic technique they have evolved, adapted or refined. The advantages of articulating and explaining practice and making it visible to others are that it helps those learning from their peers to improve their practice as well as improving the performance of the person doing the explaining or coaching. This is because the process makes visible what is often tacit knowledge of practice – which teachers use but never express. Articulating this helps them become more reflective practitioners themselves and therefore more able to improve further.

Above all, the school should make such an investment in professional development visible and available to all. Efforts should be made to celebrate and value what has been learned and shared. For example, establishing a 'learning wall' in the staffroom where a Lesson Study group can display their work – photos, notes, observations, discussion outcomes, pupil interviews and tentative conclusions – will create staffroom talk about professional learning long after the formal sharing is over.

Annex 1

Determining your Lesson Study focus



Annex 2

Study lesson planning, observation and discussion sheet

Subject: Focus: Strand: Year Group: Teacher/observer:

**What is this study lesson aiming to teach? It may be a section of a longer teaching sequence.
What teaching technique is the study lesson aiming to develop? We are improving...**

Current attainment and success criteria <i>Describe what you are looking for from the pupils by the end of the lesson in the identified aspect</i>	Case pupil A		Case pupil B		Case pupil C	
	Current approximate NC Level in writing Low / Secure / High (delete) Success criterion for this focus	How they are observed to respond	Current approximate NC Level in writing Low / Secure / High (delete) Success criterion for this focus	How they are observed to respond	Current approximate NC Level in writing Low / Secure / High (delete) Success criterion for this focus	How they are observed to respond
Stage of lesson sequence	How you hope case pupil(s) A will respond	How they are observed to respond	How you hope case pupil(s) B will respond	How they are observed to respond	How you hope case pupil(s) C will respond	How they are observed to respond
Stage: <i>(approximate time)</i>						
Stage: <i>(approximate time)</i>						
Final stage: <i>(approximate time)</i>						
What were the case pupils able to do? (What progress have they made, and how do you know?)						
Initial thoughts						

Annex 3

Post-lesson discussion record

Post-lesson discussion record			
	Case pupil A	Case pupil B	Case pupil C
What progress did each pupil make? Was this enough? What about others in the group of learners they typify?			
How did the technique being developed help or hinder? (Maybe a bit of both.) What surprises were there?			
What aspect(s) of the teaching technique could be adjusted next time to improve the progress of each pupil?			
What techniques should we try next time?			

Initials

Date

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