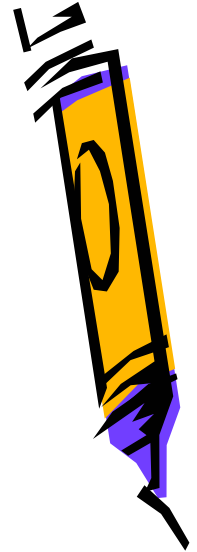


The Yellow Pages



- Project Information:
 - Calendar
 - General Info (Stipends, PDP's, etc.)
 - Contact Info
- Forms you might need:
 - Attendance Form
 - Meeting Log Form
- Help for Conducting Meetings
 - Keeping Team Records
 - What Does the EDC Coach Do?
 - What should the team be doing next?
 - Suggestions for exploring the mathematics of the lesson
- End of Cycle Reports
 - Guidelines for End of Cycle Report
 - Lesson Plan Format



Lesson Study Communities in Secondary Mathematics

Project Calendar 2003 - 2005

Stipended workshops are noted with a \$ and fall outside the school day or year.

	Date	Location
2003-2004 School Year		
(\$) Intro workshop	Aug 19-20, 2003	at EDC
Fall cycle of lesson study.		at your school
End of cycle workshop:	Dec 5, 2003 *	TBA
Spring cycle kickoff workshop:	March 5, 2004 *	TBA
Spring cycle of lesson study:		at your school
End of cycle workshop:	May 7, 2004 *	TBA
(\$) Summer workshops: 2 days		
2004-2005 School Year		
(\$) Fall cycle kick-off meeting:	last week Aug 2004	at EDC
Fall cycle of lesson study.		at your school
End of cycle workshop:	1st week Dec 2004	at EDC
Spring cycle kickoff workshop:	1 st week March 2005	at EDC
Spring cycle of lesson study:		at your school
End of cycle workshop:	1 st week May 2005	at EDC
(\$) Summer workshops: 1 day		at your school

In addition to these regular project activities, all teams will join together during the 2004 - 2005 school year to put on a Project Showcase where the work of all teams can be shared with a broader community of interested educators. We will also be encouraging all teams to consider planning a Lesson Study Open House. The open houses would be opportunities to share your work with other teams as well as with colleagues from your own school.

*** Note: The workshop dates are still awaiting final confirmation. As soon as the location is confirmed, the date will be locked in. In the meantime, please hold the given dates and save the 2 days prior as well. [December 3 - 5, March 3-5, and May 5-7] We should be able to finalize all three dates by mid September.**

Lesson Study Communities in Secondary Mathematics

General Information

Team Records:

Each team will provide the project staff with a full year schedule of meeting dates, and keep accurate attendance records and meeting logs. It is extremely important, in order for our project to fulfill its responsibilities to the National Science Foundation, for us to have accurate documentation of attendance at all meetings. Please use the attendance and log forms provided in the yellow pages.

Stipends:

The National Science Foundation has provided us with stipend funds for participants. Teachers who are fully participating with the team will be eligible for the stipend.

The stipend will include: \$130 per cycle to cover research or evaluation activities and completion of the end-of-cycle reports, and \$75 for each of the 6.5 workshop days that falls outside normal school hours. Over two years this will be approximately \$1000. Stipends will be disbursed at three times: September 2003 (Cohort 3 only), in June 2004, and in June 2005.

PDP's:

PDP's will be provided for EDC workshop days for participants who request them and complete the short reflection questions for each workshop day. Because the state requires teachers to spend a minimum of 10 hours in one activity to qualify for PDP's we will offer them as follows:

New teams may receive 14 PDP's for the Intro Workshop.

All teams may receive 21 PDP's for the 3 school year workshops.

Graduate credits:

Graduate credits are available at modest cost (2003 cost was \$165) through Framingham State to participants who register and complete the requirements. This year we expect to offer two courses. Official registration forms will be completed at the December workshop, and the courses will be recorded in the Spring Term at Framingham State. Each course will offer 3 credits and will require readings, reflections, and a final paper. See course descriptions for more details.

Project Web Site:

At our web site <http://www2.edc.org/lessonstudy/> you can find project information and resources, including times and locations of workshops, lesson plans, and more. We encourage teams and individuals to submit reflective writing and team reports for posting on the web site. Please contact Johannah Nikula for more information.

Lesson Study Communities in Secondary Mathematics

Contact Information:

Who should I contact? We're all happy to answer questions, but here are some suggestions that should get you talking to the right person on the first try:

- If it is about workshop logistics, PDP's, attendance records, stipends, or if your address, phone or email is changing, please contact Helen Lebowitz.
- If it is about the project research or the project web site, please contact Johannah Nikula.
- If it is about changing a scheduled team meeting, discussing your team's lesson study work or clarifying general project requirements, please contact your coach.
- If it is about the graduate credit course, please contact Jane Gorman.

All EDC staff can be reached by calling EDC at 617-969-7100

Helen Lebowitz hlebowitz@edc.org
Jane Gorman jgorman@edc.org
Brian Lord blord@edc.org
June Mark jmark@edc.org
Johannah Nikula jnikula@edc.org

Additional Coaching Staff:

Deb Spencer: dspencer@edc.org
Joan Bryant: HUDSON.MASSED@RCN.COM
Terry Leverich: terryleverich@sprintmail.com
Diana Metsisto: dianamets@aol.com
Loretta Heuer: LorettaMCH@aol.com

Project EDC mailing address is:

Education Development Center, Inc.
55 Chapel Street
Newton, MA 02458

Team Contact Person:

We ask that each team choose one teacher to act as a contact person for the project. This does not mean "leading" the group, but simply providing an administrative link between the teachers on the team and the project staff. Teams may choose to rotate this job, but we would appreciate it if each person stayed with the job for a full cycle. Responsibilities include:

- Notify EDC of any changes in meeting time/place
- Keep the project informed of team needs.
- Make sure all team members are notified of project information.

Team Participant Contact Information:

A list of participating teachers will be made available as soon as the list is updated for 2003-2004.

Lesson Study Communities in Secondary Mathematics

Lesson Study Meeting Log

Team:

Date:

Meeting Leader:

Meeting Recorder:

Agenda items for the meeting:

Things to remember from the meeting: decisions, topic debated, insights

(Over→)

Lesson Study Communities in Secondary Mathematics

Next Steps

Our next meeting will be on _____ from _____ - _____ in _____.
(date) (time) (location)

The meeting leader will be _____.

The meeting recorder will be _____.

Items on the Agenda

"Parking Lot"

Work assignments for the next meeting

_____ will _____
name(s) task

_____ will _____

_____ will _____

_____ will _____

Lesson Study Communities in Secondary Mathematics

Keeping Team Records

FOR EACH MEETING KEEP:

Attendance sign-in sheet*

Meeting log/agenda*

Ongoing notes (how the lesson changes as you plan and revise it, mathematics learning, data on student learning, etc.)

FOR EACH CYCLE SUBMIT:

Accumulated attendance records and meeting logs.

Team report including:

Individual and team end-of-cycle reflections.

The lesson plan, with context and rationale.

Also encouraged are:

Keeping an ongoing individual journal of reflections.

Readings. (Required if enrolled in course for grad credit.)

Lesson Study Communities in Secondary Mathematics

What Does the EDC Coach Do?

The EDC coaches are here to support you and your team during the lesson study cycle. For all teams, the coaches will:

- Provide information and resources about lesson study.
- Help the group move through the lesson study cycle in the time available.
- Provide a direct communication link between the project and the team/school.
- Provide support to the meeting leader(s).

Also, since each team and school situation is unique, individual teams may want or need different kinds of additional support. We encourage you to have regular open discussion with the coach about ways the coach can help the team. Here are some additional ways the coach might support your team:

- Observe your meetings and give feedback on areas such as the content of your work, the facilitation of the meeting, or the dynamic of the team.
- Facilitate specific meetings, such as the pre-observation or post-observation meetings. Your coach could also facilitate part of a meeting if a group becomes "stuck" or is unsure of how to proceed.
- Provide resources to the group related to content, pedagogy or student understanding of mathematics. Your coach could also refer you to other people or resources related to your research lesson.
- Provide another perspective and set of experiences during your team discussions.
- Correspond via phone or e-mail during the time between meetings as issues arise.
- Motivate you to continue the lesson study cycle when it feels like you just don't have the time or energy!
- Promote you to your school and district administrators so that you receive support for the work you are doing.

Lesson Study Communities in Secondary Mathematics

What should the team be doing next?

If your team is meeting without a coach, and the team is not sure what it should be doing, try scanning the following list for suggestions. We have provided a few critical activities or questions that often occur during each of the four main stages of the lesson study process. The suggestions are listed in the order you will probably be tackling them, but this is not a fixed “right” order. It is also important to note that you do NOT have to do ALL the things on this list. Use it to help you get ideas for a “next step” if you’re stuck.

1. FOCUSING the LESSON STUDY

- Getting started. [Get to know each other. Agree on group norms, schedule, logistics.]
- Set a goal. [Discuss where your students are and where you want them to be.]
- Choose a content topic/concept for the lesson. [Think about when the research lesson will be taught, what content topics/concepts challenge students and what content topic/concept will let you target your goal.]

2. DEVELOPING the LESSON

- Discuss broad mathematical context of the lesson topic. [Share and seek out expertise on teaching the topic. What knowledge do students come in with? What ties do you see to future concepts? What outside resources could help? Study different textbooks and see how they approach this topic.]
- Make a unit outline for the content topic/concept. [How many lessons will be needed for the whole unit? List lesson sub-topics and time allotted. Which lesson will be the research lesson?]
- Search for problems with good potential to get at the topic AND at your goal. [Share ideas and resources. Think about what would get students engaged in the lesson.]
- Anticipate varied student responses to the lesson problem(s). [Take time to do the problem(s) individually, compare methods, and think about how students might approach it. Consider potential extensions.]
- Draw up a rough lesson outline. [Main teacher actions, student activities, expected responses. Find the best way to pose the problem(s), discuss what changes in student understanding might come from different phrasing of the questions. Talk about how the lesson as planned will achieve your goals or address your research questions.]

Lesson Study Communities in Secondary Mathematics

- ❑ Collect some preliminary data. [Try the question(s) or roughly drawn lesson with one class or with a few individual students.]
- ❑ Complete the lesson plan. [Use preliminary data to fill out the “anticipated student response” part of the lesson plan, refine directions about teacher actions, determine a few key points in the lesson where the teacher will be able to evaluate student understanding, create manipulatives, plan for use of the blackboard. Ask again: What is our hypothesis about how this lesson will support our goal?]

3. OBSERVATION, DEBRIEFING AND REVISION

- ❑ Decide who will teach the research lesson.
- ❑ Discuss strategy for observation. [What data will observers collect?]
- ❑ Discuss protocols for the observation and post-lesson discussion. [How will outside observers learn about our goals and our protocols? What will we tell the students about what to expect on the observation day?]
- ❑ Prepare materials for observation. [Copies of lesson plan, student materials, seating chart. Possibly arrange for class to be videotaped.]
- ❑ Revise the lesson, using data from the observation. [Ask: what have we learned about how students come to understand this topic? What were some unexpected student responses or confusions?]

4. REFLECT, RECORD, PLAN NEXT STEPS

- ❑ Complete the final lesson plan. Pay special attention to the rationale: What was your hypothesis about how students would understand the topic? Why did you choose to make the plan this way? How did these choices affect student understanding?
- ❑ Reflect as a group or as individuals. [What have we learned about the mathematics of this lesson? What have we learned about how students understand or misunderstand this topic? Which aspects of our lesson plan could be improved? What were the most valuable aspects of lesson study for our team?]
- ❑ Make plans for your next cycle. [What new research questions or hypotheses are generated by our work on this lesson?]

Lesson Study Communities in Secondary Mathematics

Exploring the Mathematical Content of a Research Lesson

There are many ways that a lesson study group could explore the mathematical content of their lesson. Here are a few suggestions:

- ⇒ Generate different ways to solve a problem.
- ⇒ Re-read your textbook and discuss what approach your book is promoting for a particular content area or topic.
- ⇒ Compare how a specific topic is treated in a few textbooks.
- ⇒ Decipher the perennial glitches. Ask, "What is it that students always get wrong when doing this mathematics and why is that happening?"
- ⇒ Analyze the errors. After observing the lesson, ask, "What mistakes did students make and why do you think they did that?"
- ⇒ Think about what numbers you choose to use in a problem. Is there any significance to the numbers? What would happen if you chose different numbers?
- ⇒ Think about how you word a particular question you will ask in the lesson. Does it use the appropriate mathematical vocabulary? Do students know all of the terms you are using?
- ⇒ Talk about what students know about this topic coming into the lesson.

Lesson Study Communities in Secondary Mathematics

End of Cycle Report Guidelines

At the end of each cycle of lesson study, each team will prepare a report that allows them to reflect on and summarize their work in a meaningful way.

The team report will include:

- ❑ The lesson report: including background information on the students and the unit, the instructional plan, and the rationale for the research lesson. We encourage you to use the lesson plan format provided in this packet.
- ❑ Individual and Team Reflections: Several questions about the cycle will be provided for individual written reflection, and some for the team to discuss and respond to together. Your coach will provide these questions at a team meeting.
- ❑ Attendance records. PLEASE USE PROJECT-PROVIDED ATTENDANCE SHEETS.
- ❑ Meeting log or notes from each team meeting.

Note: It is common in Japan for lesson study teams to publish their ideas and research findings in the form of a lesson study report. Some of these reports are then made available to teachers all over Japan, forming a wonderful resource for the profession and a way for teachers to share what they have learned. Teachers often go to bookstores and buy published lesson study reports when they are beginning work on a new research lesson. In the United States, lesson study is still new, and finding lesson reports in a bookstore is not yet an option. For now, we hope to make many of your reports available to other teachers via our website, thereby beginning to build a similar shared knowledge base of research lessons in the U.S.

Planning ahead: Putting together the report at the end of the cycle will be easier if you:

- ❑ Save early drafts of the lesson plan, noting major changes you made and why.
- ❑ Keep some individual notes or a journal containing ideas, questions, or reflections that you have during the cycle.
- ❑ Plan to spend some time discussing the reflection questions during your meetings as the cycle nears its end.
- ❑ Keep thinking about your original research questions and goals as you plan and observe the lesson.

Lesson Study Communities in Secondary Mathematics

Background Information for Observers

Lesson prepared by ...

Lesson taught by...

I. Context for the Research Lesson:

In this section, you describe the broad lesson study goal for your students and give some background information on your students. Readers should gain a real sense of what your students are like and what you hope to achieve for them with this lesson.

II. Unit Information

In this section, you describe the content of the unit that the research lesson is a part of and detail how the research lesson fits into the instructional sequence of the unit.

III. Lesson Information

In this section, you describe the conceptual focus of the lesson. What do you want students to understand? What are your ideas about how this lesson will help them understand this mathematics?

Name of lesson:

Focus of the Lesson:

Lesson Study Communities in Secondary Mathematics

Instructional Plan

Materials:

Steps	Student Activities, *Anticipated responses	Teacher things to remember, ** responses to students	Evaluation
Introduction (5 minutes)			
	Students will...	Teacher should...	Did students understand?
	Students might ...	Teacher could....	Did students meet the goal?
Body			
Summary			