Lesson Research Proposal for \_\_\_ (grade & topic)

For the lesson on date

At name of the school, teacher’s name class

Instructor: name

Lesson plan developed by: names

This document has four purposes: 1) to guide the planning team through the lesson study process; 2) to help the team think clearly about their goals and their theories about how to achieve them; 3) to prepare observers to collect data, and then discuss that data, in a way that helps the team understand whether their theories are correct; and 4) to document the entire research process for the benefit of other educators.

Experienced lesson study practitioners use a variety of formats, but this template identifies important considerations of lesson study. It is based on a template originally introduced to Chicago by Dr. Akihiko Takahashi, and has been refined through several years of use by teams in Chicago and elsewhere.

Red text briefly describes what the sections are for; **all red text should be eventually be deleted.**

Lesson study is not a clean, linear process, but we recommend that you focus on sections of this document in approximately the following order:

* Research theme (section 3)
* Relationship to the standards (section 6) (start from the standards to determine what students need to learn)
* Research and *kyouzai kenkyuu* (section 8)
* Background and rationale (section 7)
* Goals of the unit (section 4)
* Unit plan (section 9)
* Goals of the research lesson (section 5)
* Research lesson (section 11)
* Evaluation (section 12)
* Title of the lesson (section 1) & Brief description of the lesson (section 2)
* Design of the unit and lesson (section 10)
* Board plan (section 13)
* Reflection (section 14) (after the lesson)

Lesson Study is a more complex process than most people realize at first, and there are limitations to what can be communicated through a template. If this is your first, second, or even third time, we urge you to solicit guidance from someone with more experience (contact info@LSAlliance.org for references). We also urge you to read the article about Collaborative Lesson Research at <http://wp.me/P64mnv-7S> .

If you use this template and like it, or have questions, or if you have feedback for us on how it could be made better, please send us an email at info@LSAlliance.org.

# Title of the Lesson: <a descriptive title>

# Brief description of the lesson

One or two sentences about what students will do and learn during the lesson.

(write your text here and delete the red text above)

# Research Theme

Describe the broad goals of your lesson study work. Many groups base their research theme on one or two Standards for Mathematical Practice of CCSSM. The article on Collaborative Lesson Research includes some discussion about what a research theme is, and what it is for. See: <http://www.lsalliance.org/clr-a-powerful-form-of-lesson-study/> – scroll down to “A clear research purpose”.

If you do not actually have a research theme that goes beyond the topic of the lesson, omit this section.

(write your text here and delete the red text above)

# Goals of the Unit

Academic learning goals should describe cognitive or emotional changes within the student. Avoid “Students will be able to…” statements; instead, say what a student needs to know or understand in order to be able to…. See <http://LSAlliance.org/blog/2016/05/learning-goals-describe-cognitive-change>

Students will understand/know that/…and thus be able to…

# Goals of the Lesson:

Most lesson study teams choose a lesson early in a unit, where the foundational ideas of the unit are developed. Avoid choosing a lesson in which students will mostly demonstrate what they have learned in previous lessons.

1. Students will understand/know that/appreciate …

# Relationship of the Unit to the Standards

DELETE RED TEXT This section typically describes how this unit fits between the standards from prior grades (CCSS) and the standards for this or later grades. Do not quote standards in their entirety; excerpt the relevant clauses or use strike-through to show which parts of a standard are and are not being addressed.

For mathematics, the Coherence Maps may be useful: http://achievethecore.org/coherence-map/

|  |  |  |
| --- | --- | --- |
| Related prior learning standards | Learning standards for this unit | Related later learning standards |
|  |  |  |

# Background and Rationale

DELETE RED TEXT Justify your choice of theme and topic. Why is it important for you to devote so much effort to researching how to teach this topic? Frequently this is expressed in terms of a contrast between the current state of students (or students in previous years) and what you and your colleagues want to accomplish.

(write your text here and delete the red text above)

# Research and *Kyozaikenkyu*

How does your curriculum and others structure the flow of learning around this topic? What tasks, contexts, manipulatives are used, and what do you see as their merits or shortcomings? What else did you look at that shaped your thinking about how to design this unit and lesson? Aim for a balance between quoting large blocks of text and just giving a link to a website.

The following free (Creative Commons license) curriculum appears to be a promising resource, available (as of June 2018) for grades 6-8:

https://im.openupresources.org/

(write your text here and delete the red text above)

# Unit Plan

Succinctly show how the research lesson fits into a larger unit. Helps the reader, and observers, understand the condition of students coming into the lesson (what they have learned and experienced recently) and what skills or concepts will be addressed later. Units vary in length, but a typical unit might be 10 lessons, including practice days. Indicate clearly where the research lesson falls within the unit.

Details like “bell-ringer” tasks or homework assignments should not be included unless they are important for understanding the progression of learning.

|  |  |
| --- | --- |
| **Lesson** | **Learning goal(s) and tasks** |
| 1 | Goal: Students know that equivalent fractions can be obtained by multiplying or dividing both numerator and denominator by the same number, and they understand why this is so based on visual models.  Task: Let’s think about fractions other than 2/8 and 3/12 that are the same size as 1/4. |
| 2 | **The research lesson:** <brief description of this research lesson> |
| 3 | Goal: …  Task: … |
| 4 |  |

# Design of the Unit and Lesson

This section typically discusses:

* the current state of the students coming into the unit with respect to the research theme and relevant prior knowledge (as much as is not addressed in “Background & rationale”, above);
* how the lesson has been designed to address the research theme and learning goals.

A research lesson should be developed with specific students in mind, so it is important for the reader to know something about them and how this lesson is tailored to them.

A good way to organize discussion of the design of the lesson is to use the TRU Math Framework (<http://map.mathshell.org/trumath.php>) developed by Alan Schoenfeld, as follows:

## The Mathematics

Describe the mathematics that the students will be thinking about and learning.

(write your text here and delete the red text above)

## Cognitive Demand

Describe how the tasks been designed to be appropriately demanding, so that students engage in productive struggle.

(write your text here and delete the red text above)

## Equitable Access to Content

Explain how the lesson will invite and support the active engagement of all students with the core disciplinary content.

(write your text here and delete the red text above)

## Agency, Authority, and Identity

Describe how the lesson will ensure that students retain ownership of the important ideas and are allowed to build upon each other’s ideas, and support their development of positive identities as thinkers and learners.

(write your text here and delete the red text above)

## Formative Assessment

Describe how the unit and lesson will make student thinking and misconceptions visible, and plans for adapting instruction in response.

(write your text here and delete the red text above)

# Research lesson

The sections of this lesson plan are based on a typical problem-solving-based mathematics lesson, which may or may not be appropriate for your lesson. “Anticipated student responses,” however, should always be included.

THIS SHOULD NOT BE A SCRIPT. But it should clearly communicate the team’s ideas for how the lesson will help students learn, in sufficient detail that a teacher reading this plan could adapt and teach the lesson to his/her own students.

|  |  |  |
| --- | --- | --- |
| 1. **Steps, Learning Activities** 2. **Teacher’s Questions and Expected Student Reactions** | 1. **Teacher Support** | 1. **Assessment** |
| 1. DELETE THIS ENTIRE ROW OF THE TABLE 2. This column shows the major events and flow of the lesson. | 1. This column shows additional moves, questions, or statements that the teacher may need to make to help students. | 1. This column identifies (a) what the teacher will look for (formative assessment) that indicates it makes sense to continue with the lesson, and (b) what observers should look for to determine whether each segment of the lesson is having the intended effect. |
| Introduction   1. This section may set up the main task, e.g. by providing a contextualized problem out of which a pure mathematical problem will arise. Or, it may review the previous day. Beware of making the intro too long. Sometimes it’s best to skip an intro and dive right into the problem. 2. (write your text here and delete the red text above) |  | 1. What is the pedagogical purpose served by this introduction? 2. (write your text here and delete the red text above) |
| Posing the Task   1. This section describes a problem or task as it will be presented to students. Give the exact phrasing of the *hatsumon* (key question(s)) and the specific numbers used. 2. Include any diagrams that will be presented, or any readings or other material that the students will need. Longer items can be attached at the end of this document. 3. Consider helping students see the relationship between the specific problem (whether contextualized or not) and the concepts or skills that will be learned. For example, the lesson might pose a problem such as 402 – 175, and through working on this problem students are supposed to learn the answer to: “How do we subtract when we need to regroup from the 10s place, but there is a zero in the 10s place?” 4. (write your text here and delete the red text above) | 1. Indicate here whether the problem will be written on the board, posted, handed out as a worksheet, or glued into student notebooks. | 1. Examples of assessment questions for this section of the lesson might be: 2. a) Do students understand the task? (if they don’t, it’s probably not a good idea to move on) 3. b) Are students eager to solve the problem? (not necessarily crucial, but it might be something the planning team hopes to achieve in the posing of the problem) 4. (write your text here and delete the red text above) |
| Anticipated student responses   1. Give anticipated student solutions, starting with the most likely. Indicate which ones are correct, or preferred, and incorrect. Include sample graphs or diagrams, if the reader would need them to understand. Unlikely solutions do not need to be included. Identify correct vs. incorrect solutions. | 1. Here the plan might describe how the teacher will handle the different student responses, especially incorrect solutions, students who get stuck, or students who finish early. 2. Beware of tutoring – see 3. <http://www.lsalliance.org/2016/01/not-teachers-job-teach-students/> Sometimes the best way to handle a misconception is to let it go until the discussion. | 1. Examples of assessment questions for this section of the lesson might be: Are students able to tackle the problem? Do the manipulatives help students gain insight into the problem? 2. (write your text here and delete the red text above) |
| Comparing and Discussing   1. This section may identify which student solution methods should be shared and in what order, or generally how to handle the discussion. | 1. What are the ideas to focus on during the discussion? | 1. The assessment questions here usually focus on whether students recognize why a certain solution is incorrect, or understand some key point, or appreciate the merits of one solution over another. Questions may also relate to the research theme; e.g. “Are students defending their ideas? Are they responding to each other’s ideas?” 2. (write your text here and delete the red text above) |
| 1. (If needed, repeat 2, 3, & 4 above for additional tasks. Otherwise delete this row.) |  |  |
| Summing up   1. This section may describe how the teacher will summarize the main ideas of the lesson. A good strategy is to look back at the opening problem, to remind students of what was new or difficult about it, and ask students to talk about what they learned about how to solve problems like that. 2. (write your text here and delete the red text above) |  | 1. Sample: 2. “Does the summary accurately represent the students’ view of the lesson?” or “Can students articulate \_\_\_\_?” 3. (write your text here and delete the red text above) |

# Evaluation

This section should include questions, to be discussed after the lesson, about the effectiveness of the lesson in terms of the planning team’s research goals. It should include at least one question specific to the research theme (if you have one) and at least one about the specific content goals. For example:

a) Did the lesson successfully promote student-to-student discussion? (i.e. the theme)

b) Do students understand that …? (i.e. a content goal)

Include any other questions that the planning team hopes to explore through this lesson and the post-lesson discussion.

(write your text here and delete the red text above)

# Board Plan

Some teachers believe it is important to make visible the important ideas in a lesson by capturing them on the board. If this is a concern of your team, include here a diagram showing how work on the board will be organized. A good approach is to run a simulation of the lesson and then take a photo of the board. (Please reduce the size of the photo as much as possible without losing clarity so this document isn’t bloated.)

(provide your diagram or image here and delete the red text above)

# Reflection

After the research lesson, the team should write a reflection, which will normally include:

* what the team had hoped to observe during the lesson
* what was actually observed during the lesson, by the team members and others;
* major points raised during the post-lesson discussion, and the team’s own opinions;
* points made by the knowledgeable other; and
* ideas for future study.

This may be a few paragraphs in length. A good reflection makes the final document **much more valuable** to an outside audience.

(write your text here and delete the red text above)

The following is FOR YOUR REFERENCE. DELETE IT FROM YOUR FINAL LESSON PLAN.

**Checklist for preparing for your research lesson**

## **About a month before the lesson**

* Finalize the date of the lesson
* Invite a knowledgeable other (Dr. Takahashi, Tom McDougal, or other) to provide final comments.
* Choose a “discussion chairperson” (moderator) for the post lesson discussion. (This person is normally provided by LSAlliance.)
* Decide whether to make your lesson public; if so, let Tom know whom to invite.

## **1 Week before the lesson**

* Simulate the lesson with the planning team to check for “bugs” and to create a board plan.
* Send lesson plan to knowledgeable other—even if not final version
* Schedule “kampai” and invite everyone! (The teacher chooses the place.)
* Establish who will be responsible for taking notes during the post-lesson discussion – consider asking someone from another team to help.

## **1-3 Days before**

* Email/Distribute your proposal to observers so they can read it ahead of time.
* Prepare materials for the lesson (handouts, manipulatives, posters)
* Prepare handouts for observers:  
  - Copies of final lesson plan, copied single-sided (so people can use the back to take notes)  
  - Copies of any student handouts (may be shrunk to save paper)  
  - Copies of the seating chart, drawn from the observer’s perspective

## **Day of the lesson**

## What to bring

* Clipboard + pen/pencil for taking notes while standing (or LessonNote on iPad)

## **During the lesson**

* Take lots of notes! Record student writing, student comments, student affect. Record your notes on the lesson plan, or on copies of a seating chart, or blank paper. When you have a little experience, try LessonNote (for iPad).
* Do not interact with the students.
* No side conversations, as they might distract the students.
* Stay out of the teacher’s way.

## **The post-lesson discussion**

A professional conversation. Not a "debrief"—not just a reporting out—but a **discussion**.

## Objectives:

1. To shed light on how **the lesson** – its design and implementation – impacted student thinking, behavior, and affect, relative to the goals of the lesson and relative to the school theme.
2. To identify misconceptions that will need to be addressed in future lessons, and to discuss how they might be addressed.
3. To generate ideas for how to address the research theme.

## Key personnel:

* Discussion chairperson (usually Tom or an experienced LS practitioner; may be a member of another team)
* Knowledgeable other (usually Dr. Takahashi)
* Notetakers

## Protocol:

* Teacher will give first comments: how did lesson go compared to what was planned; what did T observe? if T deviated significantly from the plan, why and what was the result? Did new questions arise that the T would like to discuss?
* Other planning team members may be invited to contribute observations and raise questions.
* Chairperson will identify topics of discussion and invite observations and discussion by the whole group.
* Observers should support opinions with data.
* At the end, the Knowledgeable other will give about 20-30 minutes of uninterrupted remarks.

# After the lesson

## **Kampai!**

Thank the teacher by buying her/him food and drink! Celebrate the hard work of the team!

## **Final reflection (within a week of the lesson)**

* Obtain notes from the note-takers. Write a joint reflection of 3 paragraphs or so describing what was learned from teaching the research lesson and from the post-lesson discussion.
* Append the final reflection to the lesson plan, and send the final version to Tom for posting to the Chicago Lesson Study Group website.
* Share your learning with colleagues at your school, e.g. via a 1-page newsletter (it’s nice to include photos!).