Facilitation Guide

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Collaborative Inquiry Cycle

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**Development of the *Collaborative Inquiry Cycle: Facilitators’ Guide* was informed by:**

Boudreaux, Andrew; Emmet, Mark; Gammon, Steven D; Janda, Mary; Somera, Adrienne*. Abridged Integrated Curriculum Topic Study and Lesson Study Tools: Facilitators’ Guide*. North Cascades and Olympic Science Partnership, Summer Academy 2005. Adapted from work developed collaboratively by Global Education Resources LLC, Paterson Public School 2 (Paterson, NJ), Research for Better Schools, and Northwest Regional Education Laboratory Mathematics and Science Education Center.

*Facilitator Guide: the Professional Teaching and Learning Cycle*. Adapted from *The Professional Teaching and Learning Cycle,* Developed by the Charles A. Dana Center and the Southwest Education Development Laboratory.

**Facilitator’s Role**

The role of the facilitator is to assist the collaborative inquiry group, focusing on how the learning progression and lesson will address their goals, and developing specific questions to assist lesson observers in gathering evidence of student learning. This evidence should yield information which is broadly applicable to their classroom practice.

**Collaborative Inquiry Cycle Supporting Resources:**

These resources are especially helpful when creating learning progressions and in lesson planning. Although not essential -- the expertise and experience of the team members can serve well in the documents absence – the resources contain valuable insights, and are useful to have available for reference.

 **Math and Science**:

* + - * ***How People Learn*: *Brain, Mind, Experience, and School,*** Bransford, John D., Brown, Ann L., and Cocking, Rodney R., editors; Commission on Behavioral and Social Sciences and Education, Committee on Developments in the Science of Learning National Research Council. National Academy Press 1999, Washington, D.C.
* [***Curriculum Topic Study***](http://www.curriculumtopicstudy.org/about-cts), Keely
* ***Atlas of Science Literacy,*** AAAS
* ***Atlas of Science Literacy, Vol. 2,*** AAAS
* ***Science for All Americans,*** AAAS
	+ - * ***Benchmarks for Science Literacy,*** AAAS
* [**Bloom’s Taxonomy**](http://www.celt.iastate.edu/pdfs-docs/teaching/RevisedBloomsHandout.pdf)(2001 revision), Iowa State University
* [**Webb’s Depth of Knowledge (DOK) Chart**](http://dese.mo.gov/divimprove/sia/msip/DOK_Chart.pdf),
* [***Common Core State Standards for English Language Arts***](http://www.corestandards.org/the-standards/english-language-arts-standards/), CCSSI

**Math:**

* ***Mathematics Curriculum Topic Study****,*  Keeley, P. and Tobey, Cheryl Rose
* ***Beyond Numeracy,*** Palos
* [***NCTM Principals and Standards***](http://www.nctm.org/standards/content.aspx?id=26798)***,*** NCTM
* ***A Research Companion to Principals and Standards,*** NCTM
* [***National Math Standards***](http://www.nctm.org/standards/content.aspx?id=4294967312), NCTM
* [***Washington State Math Standards***](http://www.k12.wa.us/Mathematics/Standards.aspx)**,** OSPI
* [***Common Core State Standards for Mathematics***](http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf), CCSSI
* **District adopted mathematics teaching materials**
* **Other existing math lessons**

**Science:**

* **Science Curriculum Topic Study,** Keeley, P. (2005). Thousand Oaks, CA: Corwin Press.
* ***Making Sense of Secondary Science: Research into Children’s Ideas,*** Driver
* ***National Science Education Standards,*** NRC
* [***Next Generation Science Standards***](http://www.nextgenscience.org/)***,*** Achieve, Inc.
* ***Science for All Americans,*** AAAS
* [***National Science Standards***](http://www.nsta.org/publications/nses.aspx)**,** NSTA
* [***Washington State Science Standards***](http://www.k12.wa.us/Science/pubdocs/WAScienceStandards.pdf)**,** OSPI
* **District adopted science teaching materials**
* **Other existing science lessons**

**Guidelines for facilitating the Collaborative Inquiry Cycle**

**Facilitating planning sessions, lesson observations and debriefings**

These facilitator guidelines are intended to help the facilitator prepare for efficient meetings. Time is perhaps the most valuable commodity for teachers, and a good facilitator will endeavor to make the most of the time set aside by team members.

|  |  |  |
| --- | --- | --- |
| **Steps in the Cycle** | **Actions** | **Number of Meetings** |
| **Craft Unit Learning Target** | The team identifies a unit learning target. The target (goal, objective) is: state-standard-specific, measureable, attainable, realistic, and time bound.  The target is written in student-friendly language. | The first and second steps are usually completed in one session. However, the unit learning progression process is new to many educators, and collaborative development of the progression generates much discussion. Therefore, development of the unit learning progression is sometimes completed during the beginning of the next session.  | 1 - 1½ hours total in 1 or 2 sessions |
| **Develop Learning Progression** | The team takes the unit learning target from step one and breaks it into sub-skills.  Only sub-skills worthy of assessment are included. A formative assessment is then planned for each sub-skill. The sub-skills are written in student-friendly language. One sub-skill is selected by the team to become the lesson learning target.  |
| **Plan Lesson** | Beginning by doing the targeted science/math sub-skill themselves, the teachers identify characteristics of student work at standard. Then, with the targeted learning as their focus, the team collaboratively plans the lesson. This planning does not have to be from scratch. The team uses whatever teaching guides are available to plan a lesson that facilitates student learning of the selected lesson target.  Pedagogy may be modified: e.g., if the teaching guide suggests a Ping-Pong approach (teacher asks a question, student answers, teacher asks a question, student answers) the lesson is modified to an inquiry model with student discourse, rather than teacher talk, a key component.  | The lesson plan is usually completed in one session. However, if development of the unit learning progression runs into this session, lesson planning may take an extra session. Or, if the available teaching guides are not aligned to the state standards, more time may be required for lesson planning. | 1 – 1½ hours total in 1 or 2 sessions |
| **Teach/Observe Lesson** | One teacher from the team teaches the collaboratively-planned lesson.  The rest of the team, and possibly district/building level administrators or coaches, observe the lesson and gather evidence concerning its effectiveness.  The lesson belongs to the entire team and only data concerning the lesson’s impact on the students is gathered.  A protocol serves as a guide to keep the data descriptive and non-evaluative. | These two steps are completed on the same day or on consecutive days. The lesson observation is during the school day. The analysis and adjustment of the lesson may take place after school. | 2 - 2½hours total in 1 or 2sessions  |
| **Analyze and Adjust** | The team and other observers gather to debrief the lesson.  Once again protocols are in place to protect team members from evaluation.  The lesson, formative assessment, and instructional strategies are the focus of the analysis.  The teacher, team, and observers each make descriptive, non-evaluative statements about what they see.   The core team decides on any adjustments to make to the lesson plan.   |
| The cycle then begins anew in three possible ways: crafting a new unit learning target (step 1), planning a lesson for a different building block (step 3) or teaching the adjusted lesson to different students (step 4).  The team makes this decision collaboratively. |

PLANNING SESSIONS

**PRE-PLANNING**

1. Agree on a time and location for the meeting
2. Collect materials:
* School’s relevant data (MAP, MBA/CBA, MSP, etc.)
* School’s demographic profile
* National and state documents: Standards, Areas of Emphasis, and/or Test Item Spec.
* Scope and sequence of district
* Text resources, as needed
* Team Calendar/ Sign-in sheet
* [Collaborative Inquiry Cycle documents](https://library.nwesd.org/tosa/program-documents)

ESTABLISHING LEARNING INTENTIONS

 ***Craft Unit Learning Target***

1. Select a strategic guide for task adherence (a protocol may be provided by the facilitator). Identify a spokesperson, a recorder, and a person to chart conversations for future dialogue.
2. Establish or review your norms. Write them for future reference. ([Norms](http://www.state.gov/m/a/os/43984.htm) may be provided by the facilitator).
3. Look for trends in your data.
4. Based on the data trends, select a learning target (ideally from the standards).
5. Reword the target for your student audience.

***Develop Learning Progression***

1. Identify all of the sub skills and knowledge needed to reach your learning target.
2. Place the sub skills and knowledge into the “blocks” in the best instructional sequence needed to bring understanding to the learning target (you may use the [Learning Progression template](https://library.nwesd.org/tosa/program-documents)).
3. Choose one of those “blocks” as the target (or goal) of your lesson.
4. Write measurable attributes to the Building Block.
5. Write at least one formative assessment that is:
* Diagnostic of student understanding
* Quick
* Informs the next step.
1. Use your Building Block target and Formative Assessment to inform your lesson planning.

PLANNING THE LESSON

***Plan Lesson***

**PRE-PLANNING**

1. Gather materials:
* Completed Learning Progression
* [Lesson Planning Template](https://library.nwesd.org/tosa/program-documents)
* Teacher’s manual for unit of study
* Other reference materials as needed
1. Do the math/science to determine requisite concepts and skills:
* Use the lenses of both learner and teacher. Examine your thinking.
* What are all the ways the task can be solved?
* What concepts and skills do you use to solve the task?
* Identify those concepts and skills that represent or connect to prior knowledge.
* What strategies or skills will your lesson require of your students?
* As you plan the lesson, keep in mind your personal experience with the task.
1. Determine evidence of student understanding.
* What methods will you use to check for understanding?
* What success criteria will determine evidence of understanding?

**LESSON FLOW**

1. Establish structures and procedures.
* Given your classroom dynamics, allow sufficient time for the entire lesson to be taught.
* Plan the lesson flow with sense making procedures.
* How will you determine the students’ preconceptions and prerequisite skills?
* How will you clarify learning intentions to the students?
* How will this lesson make students confront their misconceptions about this topic?
* How will you motivate the students?
* What questions will you ask to move the lesson along?
* What do the students need to understand as the lesson proceeds?
* What discussions, tasks, and activities will you use to elicit evidence of learning?
* What plans do you have to give students opportunities for reflection and sense-making?
* List the materials needed for each step of the lesson.
1. Anticipate students’ responses to the lesson.
* What are all the ways the task can be solved?
* How will you respond to misconceptions?
* What feedback will you use to move learners forward?
* What questions will you ask to help students clarify their thinking?
* What will you be doing during student activity/group work?
1. Ensure use of best practice.
* Is there any teaching practice you specifically want to apply during the lesson?
* Are there specific things you want to remember not to do?
1. Check for understanding.
* What should students know before you continue the lesson?
* What criteria will you look for to determine student understanding before you continue?
* What will you look for to know that the students understand the concepts and skills required to meet the final target?
* How will you know there are no more misconceptions?

Observing the Lesson

***Teach/Observe Lesson***

**Before the Lesson**

1. Invite Outside Observers:
	* Invite other teachers, administrators, and if possible at least one knowledgeable person from outside the school setting, such as a university educator. The numbers of observers will depend on the comfort level of the participants and the space available at the site of the lesson.
2. Arrange classroom to allow space for the observers:
	* The lesson site should be arranged to allow the observers to circulate through the students’ desks.
	* Consider adding chairs for the observers.
	* If possible the classroom should be arranged a week or so before the lesson, so that students can become used to the new layout.
3. Assign specific tasks to team members
	* Assign a recorder for whole task discussion sessions.
	* Assign members to observe and record specific student responses during the lesson.
	* Assign members to watch for the evidence of learning specified during the lesson planning session.
4. Arrange to meet with the team and observers for 30 minutes prior to the lesson.
	* Introduce observers if everyone has not already met.
	* Hand out required materials to all observers.
	* Go over points of evaluation with observers.
	* Go over lesson plan together.
	* Review [observation protocols](https://library.nwesd.org/tosa/program-documents) with team and observers.
5. Schedule a break of at least 10 minutes prior to the lesson before beginning the lesson study.

**Materials**

* Clipboards for all observers unless plenty of writing space is available
* [Observers’ Guideline](https://library.nwesd.org/tosa/program-documents) handouts
* [Observation Recording Sheet](https://library.nwesd.org/tosa/program-documents)
* Copies of the lesson plan
* Pens
* Copies of the team created lesson points of evaluation
* Copies of the seating chart with student first names (and last initial if necessary)
* Copies of any materials given to the students during the lesson.

**During the Observation**

 During the observation the facilitator can take the role of an observer. Focus on the overall picture and things you think observers might have missed. If any of your points are not raised during the analysis of the lesson, you can phrase prompts to bring them up in discussion. Remember that observations and evidence will be more effective if it is team generated.

Analyzing the Lesson

***Analyze/Adjust***

**Before the Debriefing Session**

1. Be sure to take a 10 minute or longer break after the lesson period to allow all those involved to recharge and reflect.
2. If at all possible, have the debriefing session in the same location as the lesson. This means that all the data on the whiteboards will be easily accessible and available to facilitate discussion about the lesson and the students. If it isn’t possible to use the same location, be sure to pack up all evidence of student learning. This could be in the form of student notes, worksheet, scratch paper, transcripts of the whiteboard, or PDFs from the Smartboard. Bring all possible material to the debriefing site for analysis and reference.
3. Prepare the debriefing location. If you have guests, set the instructor and team members in the front as a panel. If you are using the lesson space, you will have to accomplish this during the break between sessions.
4. Arrange for the team to meet briefly following the session for reflection and a discussion of next steps.

**Materials**

* Copies of the [Protocol for Analysis and Adjustment](https://library.nwesd.org/tosa/program-documents)
* Evidence of student learning from lesson site

**During the Debriefing Session**

1. Begin by assigning a record keeper to log the session. As facilitator you are not an official part of the discussion and might keep notes for the group on a whiteboard or presentation chart. The record keeper may transcribe these after the session has ended.
2. Review the protocol
	* Remind the participants of the session’s purpose:
		+ to analyze the data generated from the lesson
		+ to determine the data’s implications
* Remind the participants to stay objective.
	+ What did they see? Not, what do they think.
	+ We are focusing on the lesson and students, not the instructor’s strengths and weaknesses.
1. Begin the Protocol of Analysis and Adjustment

**CONSIDER SHARING YOUR WORK**

* Are there specific protocols/procedures for guests to take part in the Lesson Study at the chosen school? (Parking, release forms, passes,etc.).
* Can this lesson be video-taped? Are there permission forms for students to be videotaped**?**
* May others participate?
* Will you write a final report to share with colleagues?

**Websites Referenced in this document:**

Bloom’s Taxonomy, <http://www.celt.iastate.edu/pdfs-docs/teaching/RevisedBloomsHandout.pdf>

Common Core State Standards (CCSS) for English Language Arts,

 <http://www.corestandards.org/the-standards/english-language-arts-standards/>

Common Core State Standards (CCSS) for Math, <http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf>

Curriculum Topic Study (CTS), <http://www.curriculumtopicstudy.org/about-cts>

National Math Standards, <http://www.nctm.org/standards/content.aspx?id=4294967312>

National Science Standards, <http://www.nsta.org/publications/nses.aspx>

Next Generation Science Standards (NGSS), <http://www.nextgenscience.org/>

Norms of Collaborative Work, <http://www.state.gov/m/a/os/43984.htm>

TOSA Project Collaborative Inquiry Cycle (CIC) Documents,

<https://library.nwesd.org/tosa/program-documents>

Washington State Math Standards, <http://www.k12.wa.us/Mathematics/Standards.aspx>

Washington State Science Standards, <http://www.k12.wa.us/Science/pubdocs/WAScienceStandards.pdf>

Webb’s Depth of Knowledge, <http://dese.mo.gov/divimprove/sia/msip/DOK_Chart.pdf>

**Related Resources and Further Reading**

Chokshi, Sonal and Clea Fernandez. “Challenges to Importing Japanese Lesson Study:

Concerns, Misconceptions, and Nuances.” The Professional Journal for Education 85 (2004): 520-525.

[www.pdkintl.org/kappan/k0403cho.htm](http://www.pdkintl.org/kappan/k0403cho.htm)

Ertle, Barbina, Sonal Chokshi, and Clea Fernandez. “A Tool for Planning and Describing Study Lessons.”

Columbia University (2001). [www.tc.edu/lessonstudy](http://www.tc.edu/lessonstudy)

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Study.” Journal of Teacher Education 53 (2002): 393-405.

Keeley, Page. *Science Formative Assessment,* Corwin Press, 2008.

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Philadelphia: Research for Better Schools, Inc., 2002.

Popham, James W. *Transformative Assessment*, Association for Supervision and Curriculum Development, 2008.

Wiliam, Dylan. *Embedded Formative Assessment,* Solution Tree Press, 2011.

Southern Nevada Regional Professional Development Program. “Depth of Knowledge in All the Content

Areas,” ShopTalk Vol. 4 Number 2 (2009). <http://rpdp.net/pdfs/ShopTalk%20PDF/ShopTalk_Spr_09.pdf>