Lesson Phases

What is Teaching through Problem-solving? (about 10 minutes)

Read the table below summarizing Teaching Through Problem-Solving. In what ways are the phases of a problem-solving lesson similar to your current practice? In what ways different? What seems especially challenging? Identify (individually or as a team) one or more aspects of Teaching Through Problem-Solving that you would like to work on during this lesson study cycle, and note it down in section 4 of your lesson plan template under "goals of instruction."

Lesson Phase	Purposes
1. Introduction and posting the task (brief)	Teacher poses the problem, students understand and become interested in solving it, recall related ideas.
2. Independent Problem-Solving (10-20 min)	Students bring their own prior knowledge to bear, and try to develop ways to solve the problem. There may be input from classmates after students work for a few minutes on their own, but students are individually exerting effort to come up with a solution approach. Students are not simply following the teacher's solution example.
3. Presentation of Students' Solution Approaches and Class Discussion (orchestrated by teacher's *neriage* "kneading" or "polishing") (15-30 min)	Teacher selects several students to present their work on the blackboard and explain it. Choice and sequence of the student work is planned by teacher in order to support development of the important mathematical understanding(s). (Incorrect approaches are sometimes included in the presentations.) Class members actively study the solutions, supported by teacher questions such as "How many solved it this way?" and "Do you agree with this method?" Students contrast solutions, supported by teacher questions such as "What is the same and different about Sam's and Marika's solutions?" "What are the good points and difficulties of each solution method?" Discussion focuses on the thinking and reasoning used to solve the problem, and on the central mathematical ideas.
4. Lesson Summary and Consolidation of Knowledge; may include assessment task (brief)	Teacher draws on student thinking to summarize (usually on blackboard) what has been learned. Students use the blackboard record and math journals to organize, reflect on and consolidate their thinking. Class often ends with a journal writing prompt like"What I learned today."