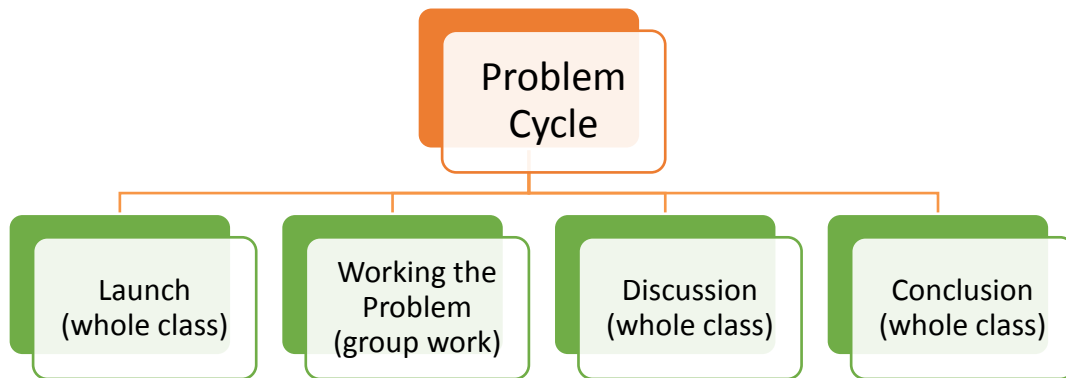


The Problem Cycle

An instructional routine that supports instructors to create opportunities for students to learn through productive struggle on rich problems and to engage in meaningful collaborative learning.



Problem Launch: The purpose of the launch is to prepare students for productive struggle -- to create a shared understanding of the problem to be worked on, make clear why solving it is important, and stimulate a variety of ways to think about the problem.

Working the Problem: The purpose of the working phase is to engage students in *productive struggle* with the problem and the concepts and to study students' ways of thinking to prepare for the discussion. The purpose of this phase is NOT to ensure that all students get the correct answers.

Discussing the Problem: The purpose of discussing the problem is to make public students' ways of thinking (correct and incorrect), encourage students to learn new ways of thinking by understanding each other, and *connect their thinking to the key concept(s)*.

Conclusion: The purpose of the conclusion is to concisely highlight the key concepts drawn from students' thinking, express the concepts with appropriate notation and representations, and *explicitly connect the lesson concept(s)* with the course organizing concepts.