

Goals for Whole Class Discussions

A whole class discussion can be done at various times of an investigation and depending on the moment the goals are slightly different. Some of these goals apply to small group discussions as well but seem particularly powerful in whole class discussions.

1. Students get an idea of how to approach a problem at all. (If a few groups have ideas and some groups are stuck with little or nothing and very frustrated)
2. Students are able to connect their ideas and strategies so that between all students in the class one (or several) solutions emerge. (If most groups have a pretty good idea but no group has a complete solution yet).
3. Student get to compare different strategies and discuss which one is the shortest, the most elegant, the most detailed, the most connecting, the most beautiful, ... (If all groups have a complete solution.)
4. Students listen to mathematical thinking and process someone else's reasoning. They learn to connect their knowledge to someone else's knowledge.
5. Students understand different definitions and approaches that might be totally different if not contradicting to theirs.
6. Students deal with mathematical disequilibrium as different ideas are added, sorted, debated and rejected.
7. Students critique the mathematical reasoning of other students in a professional learning community. (Agree/disagree)
8. Students receive critique of their mathematical reasoning in a safe environment. They learn that it is ok to change their thinking.
9. Students have to think independently (and deeply) since there is no feedback from authority. Anything is possible. (Prof just as facilitator). Students decide what is a viable argument (with help in the beginning of course - facilitator might have to ask questions to deepen reasoning at first).
10. Students explain their thinking in enough detail so that other students (not only professor) understand it. This might require way more effort but comes with the intrinsic motivation of wanting to be understood.
11. Doing brain yoga ☺