

## Face-to-face engagement and communication

*Group members must explain, discuss, and teach what they know to classmates.*

1. Arrange tables and chairs so that students sit face-to-face or knee-to-knee.
2. Use tables of appropriate size and/or a chair arrangement so that students are close enough to hear each other even when using quiet voices.
3. Choose problems and questions that are not straightforward. Ill-structured, open-ended, multiple-solutioned, and slightly ambiguous questions that require further definition by the students are best. Also assign problems that have surplus information and/or inadequate information that students can find in other sources. This forces group members to discuss what the problem is really asking for and what information they need to solve it.
4. Select problems and questions that require discussion. Questions that probe deep understanding and which require inductive reasoning are preferable for group work than those that require declarative knowledge or deductive reasoning.
5. Require students to explain the views of other members of their group.
6. Have group members adopt designated roles.
7. Develop context-rich problems, with inherent complexity and lack of precision, to promote all these goals.