**Facilitating Group Work**

**What is the instructor’s role in an activity-based classroom?**

The instructor’s role is three fold:

* Set-up: introduce the activity. This may be a short mini-lecture or an interactive discussion that motivates the activity. You might introduce new concepts or review relevant concepts from previous lessons. The goal is to provide enough information to support productive struggle. Too much information will reduce the cognitive demand of the activity and undermine learning. Too little information and struggle becomes unproductive or students give up.
* Implementation: coach students when they are working in groups, by asking questions. Make sure that any guidance honors and probes student reasoning and does not undercut the opportunity for productive struggle.
* Closure: At the end of the activity, the instructor brings the class back together to highlight concepts and connections between concepts. Ideally, this is done in a manner that respects students’ work. For example, the instructor might facilitate a class discussion of a few key problems or deliver a mini-lecture that credits students where appropriate with ideas central to core concepts or ask students to present solutions at the board.

The facilitation notes for each activity in this packet provide suggestions for set-up, implementation, and closure.

**Trouble-shooting tips for group work:**

We have three strategies that pre-empt a lot of common problems with group work:

* A compelling rationale for teamwork in general
* Random assignment of groups
* Accountability mechanisms

Below each of these strategies is mapped to common problems that instructors report with group work.

A compelling rationale for teamwork addresses the following types of student complaints:

* Students complain about working in groups.
* Students complain that you are forcing them to teach themselves and that you aren’t doing your job.

Students with these complaints do not understand how teamwork is connected to learning. They also might be frustrated because the activity is difficult.

*Suggestions for providing a compelling rationale for teamwork:*

* Share the Fortune 500 list of skills most valued by Fortune 500 companies. Note that teamwork is at the top of the list, followed by problem solving and interpersonal skills. Group work on challenging tasks provides the opportunity for students to gain these skills.
* Consider discussing the goals of a college education. Surely, we will forget much of what we learn in college. So what is the benefit of a college education? In large part, it is the experience we gain in working in teams on difficult problems, in learning to communicate our ideas clearly and convincingly through writing and speaking, in problem solving in a multitude of contexts. These skills cannot be learned by a “flip top head” approach to learning, where content is poured into our heads. Instead, we learn these skills by intentional practice. Group work on challenging problems provides this practice.
* Assign the article “When to Let Students Struggle” and have a class discussion of the research cited there and how it relates to students’ experiences.
* Assign Carol Dweck’s Brainology with some reflection questions to prompt students to think about fixed vs. growth mindsets and the implications for engaging challenging tasks and learning.

Random assignment of groups addresses the following issues:

* A few students are domineering or “know-it-alls” and appear to be doing most of the work.
* Some students want to work alone; others only want to work with their friends.
* Cliques of students (e.g. student athletes or high school friends) always sit together and engage in unproductive behaviors.

By randomly assigning groups, a student must navigate his/her role in each group. Someone who is dominant in one group may be less so with a different group. Someone who is shy in one group may be more willing to talk in another. Cliques are broken up.

Of course, students may also complain about random assignment of groups. It is important that you be consistent in using random assignment every class period. Do not capitulate to complaints by letting some groups remain together, even if these groups are productive. Random assignment of groups provides all students the opportunity to learn important “soft” skills that are part of working in teams.

*Suggestion for how to randomly assign groups:*

For a class of 32 or fewer, you can randomly assign groups using the Group Cards (available at the end of this section). Make a single copy of the Group Cards and cut it up into the 32 tickets. At the beginning of each class, give each student a ticket. Assign groups by animal, color, number or letter. Put a diagram of the room on the board and label it so that groups know where to go. If you want to reassign groups, the Group Cards will guarantee four unique groupings, i.e. no two students work together more than once.

Accountability mechanisms address the following issues:

* Students are goofing off and not engaged in the activity.
* Some students appear to just be copying from other students without really trying to learn.

*Suggestions for increasing accountability during group work:*

* Sometimes goofing off or copying is grounded in fear. Students don’t think they can do the work, so they don’t try. If you think this might be the case, try consistently, in your comments and actions, to praise effort, risk-taking, improvement, and errors that lead to learning.
* In your grading schema, include effort points for completion of activities.
* Establish an expectation for students to present solutions at the board. If students are goofing off, assign them a problem to present. Don’t worry if they don’t have much to contribute. Making them get up and do something at the board may help prevent future unproductive behaviors.
* At the some point in the activity, reassign groups using the random Group Cards, and ask groups to compare notes on a few completed problems before continuing with the rest of the activity.
* Pick one challenging problem from the activity and speed date. Speed dating makes students individually accountable. (A speed date works like this: students pair off to discuss the problem for 3-minutes or so, then re-pair with someone new to discuss the same problem. Repeat a few more times if the difficulty of the problem warrants it.) After speed dating, give students a few minutes to work individually to revise their solutions. Then call on students to come to the board to present solutions or facilitate a class discussion. Don’t hesitate to call on students who were exhibiting unproductive behavior.

Trouble shooting other issues:

* Students are sitting and staring at the activity with little conversation.

Sometimes students think problem solving is like waiting for a light bulb to turn on. They expect solutions to appear quickly and in complete form. They may also think that struggle is an indication of being stupid. So the goal is to get them to engage and try something.

*Suggestions:*

* + Ask a student in the group to read the problem out loud. Ask other group members: What is being asked? Can they identify some useful information? What seems puzzling? What have they tried?
	+ Suggest a ridiculously wrong approach and have them explain why your suggestion does not make sense. Then ask them to try something that seems more reasonable.
* Some groups finish quickly. Other groups are working at a very slow pace.

*Suggestions:*

* Determine the reason a group is working slowly. Are they productively engaged? If not, see above for tips on engaging students.
* If a group has finished, make sure that they adequately showed their work and provided explanations. Motivate revisions by assigning them one of these problems to present to the class.
* Determine if it is really necessary for all groups to finish all problems before closure. For groups that are working slowly, pick a few key problems for them to do about 10 minutes before you plan to pull the class back together for closure. Make sure that you involve these students in the class discussion even if they didn’t finish the activity.
* Use groups that finish quickly as ambassadors to other groups. If you do this, don’t let them take their completed work with them when they provide help. This will force them to learn from the acting of tutoring and will prevent copying.
* Reshuffle groups that have finished quickly, so that they can compare answers and approaches. (Let slower groups continue working.) Challenge them to come up with multiple approaches to key problems.
* Give groups that finish quickly a task, such as making a poster to present their work on a challenging problem.
* After quickly checking their work for completeness (including detailed explanations), allow students who finish early to start homework.

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| Green 3Rabbit A | Yellow 5Deer A | Pink 8Cat A |
| Blue 1Dog A | Yellow 7Dog B | Orange 6Alligator B |
| Green 1Tiger B | Blue 3Cat B | Red 3Dog C |
| Blue 5Bird C | Yellow 1Cat C | Grey 8Tiger C |
| Red 5Cat D | Purple 7Rabbit D | Orange 4Tiger D |
| Pink 2Lion D | Pink 3Deer E | Red 1Rabbit E |
| Purple 8Alligator E | Yellow 6Tiger E | Red 7Bird F |
|  Grey 4 Lion F | Green 5Dog F | Purple 2Deer F |
| Orange 2Bird G | Green 7Lion G | Grey 6Rabbit G |
| Blue 4Alligator G | Orange 8Deer H | Grey 2Alligator H |
| Purple 6Lion H | Pink 4Bird H |  |

Animals: Alligator, Bird, Cat, Deer, Dog, Lion, Rabbit, Tiger Letters: A-H
Colors: Blue, Green Grey, Orange, Pink, Purple, Red, Yellow Numbers: 1-8