

# Active learning for the large classroom

## WHAT IS THIS RESOURCE?

A description of five in-class activities that promote active learning in classes with large student enrollments. Though the activities work particularly well in large classes, they may be used in any size class.

## HOW DO I USE IT?

To implement an activity in your class, follow the instructions given under “Setup” for each activity. You may wish to model your activity on the examples provided. For assistance, please [contact CET](http://cet.usc.edu/).

Active learning techniques can be used in a flipped classroom or a traditional lecture-based course, even with very large enrollments. The following techniques are appropriate for any class size.

Some course credit should be awarded to students for participation in classroom activities, although class participation contribution to the overall course grade may be small.

### Minute papers

#### **Summary**

Students are asked a single question and asked to write their response, which is collected and read by the instructor.

#### **Setup**

Explain the entire process to students before beginning the activity. Ensure that students have a piece of paper to write on and pass in, or have access to an online submission method such as an online class wiki or individual quiz.

Pose a single question or problem to the class and allow enough time for students to prepare and write their answer. If on paper, collect the papers. If course credit is awarded for participation, ensure that students are asked to provide their names on the paper. If submitted electronically, collection and writing names will be unnecessary.

#### **Examples**

At the start of class, “List everything you know about <this topic>.” (This is called activating prior knowledge.

In the middle of class, “Solve this equation,” or “Which step in the process seems least clear to you?”

At the end of class, “What are the two most important things you learned during this class/chapter/module?”

### Pair-share

#### **Summary**

Students are presented with a question or questions and asked to devise their own answer without assistance. Students then compare answers with other students before answers are finalized.

#### **Setup**

Explain the entire process to students before beginning the activity. Ensure every student has some means of recording their answers. Pose a question and tell students to independently prepare their answer. Then have students pair and compare their answers. Each pair should arrive at one agreed-upon answer. Two pairs combine to a foursome, which agrees on a single answer. A student is then asked for their group’s response and conversation may follow. Every student should be prepared to discuss their group’s answer. The instructor may collect the answers for each foursome with the group member names for participation credit. This technique can be used with qualitative or quantitative questions, but also with problem sets. When using sets of problems, more time must be allotted for the individual answers.

#### **Examples**

Present a real-world situation or current news item and have students apply course concepts to it or identify the relevance of course concepts.

Present students with a specific outcome or topic and have students create an appropriate text question and its answer. Offer to put one of the questions on the next test.

### Concept test

#### **Summary**

Students are presented with a question and asked to respond. Student answers are displayed immediately after. Polling tools are the simplest way to manage the collection and display of student responses.

#### **Setup**

Explain the entire process to students before beginning the activity. Ensure that every student has a means of submitting their answer. Present students with a question, ideally multiple-choice. Give students enough time to prepare an answer and submit their answer. Instructor displays the class’ answer distribution. Conversation ensues.

#### **Examples**

Start the class with simple questions about the readings assigned for the class. Use polling software to assign credit for students who demonstrate that they had prepared for class.

Display the solution to a problem that contains an error. Ask student to identify the line in the solution that contains the error.

Perform a demonstration in front of the classroom, having prepared the students with one or more questions to answer about the demonstration. After the demonstration, cycle through the questions and explore the class’ responses.

After a demonstration, have students analyze experimental data collected during the demonstration and submit a result.

Combine with a pair-share activity, polling the class’ answers at each step. Demonstrate achievement of consensus through collaboration. Explore persistent wrong answers to resolve misunderstandings.

### Structured groupwork

#### **Summary**

Students are assigned persistent groups (up to 4 students per group). A group project is assigned that requires group activity throughout the course. Time is allotted during class for group activity, and specific deliverables are required as a product of the group-work time provided.

#### **Setup**

Explain the entire process to students before beginning the activity. Have students break into their groups and explain the specific outcome required for the class. Each student group submits their deliverable by the end of the class or groupwork period.

#### **Examples**

Icebreaker activities for new student groups to get to know each other.

Groups define individual group roles, timetable for group meetings, and assign tasks to group members at the start of a group project.

Group members explore the Internet to identify appropriate information sources for a group project.

Group members review a collaborative presentation and practice presentation

### Low-stakes group quizzes

#### **Summary**

Students complete a quiz individually, followed by small-group discussions of the questions and answers. Students submit their answers to the quiz after the group discussion period for course credit. Alternatively, students initially take the quiz together, giving them an opportunity to consult each other on the questions.

#### **Setup 1**

Explain the entire process to students before beginning the activity, stress that the quiz is intended as a learning activity more than an assessment. Distribute (manually or electronically) the quiz to students and allot time for completion. Once students have decided on their individual answers, form small (2-4 student) groups and allot time for group discussion of the quiz. After group discussions, students individually submit their quiz answers.

#### **Setup 2**

Explain the entire process to students before beginning the activity; stress that the quiz is intended as a learning activity more than an assessment. Distribute (manually or electronically) the quiz to students and allot time for group discussion and completion. After group discussions, each group submits their answers and individual students earn the same grade as their group.