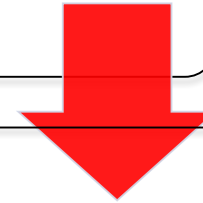


Active Learning Cycle

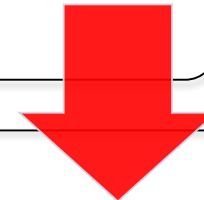
Phase One: Concept Exploration

- Provide an exploratory activity that asks students to think about the content. The goal is to establish a “need to know” for students and to raise questions and identify misconceptions. As students are working, listen for common misconceptions, interesting solutions, and insights to discuss with the whole class.



Phase Two: Concept Introduction

- Once you have established a “need to know” through the exploratory activity, move to concept introduction, where the goal is to provide answers to the student questions that were developed during the exploratory activity. Activities during this phase could be brief lectures, student-to-student discussions, or simulations.



Phase Three: Concept Application

- During this phase, students retrieve the knowledge gained during the concept introduction phase and apply it in new ways to solve real-life problems, answer questions, and make predictions.

Small-Group Synthesis Activities

Use the following small-group synthesis activities to engage your students:

Pass a Problem

1. After delivering part of a lecture focused on an important topic or concept, ask students to form small groups of two to six students.
2. Distribute one index card to each group and ask each group to write a question or pose a problem based on the lecture.
3. Instruct each group to exchange index cards with a nearby group.
4. Each group should work together to answer the question or respond to the problem on the card they received.
5. After a specified amount of time, instruct groups to return cards to the group that authored the question or problem.
6. The groups that authored each card should review the responses and prepare to provide feedback to the groups that responded to the question or problem.
7. Groups that exchanged cards should come together to share feedback on the responses provided.
8. If time permits, ask groups to share their questions, problems, and responses with the class.
9. Collect the index cards from students to (a) assess students' levels of thinking, (b) check for student understanding of the concepts presented in the lecture, and (c) determine whether any of the groups' questions or problems could be included on an exam. As an incentive for students to write thoughtful questions, you could award extra-credit points to students whose questions or problems actually appear on an exam.

Pairs Check

1. Assign a problem or question for students to work on individually.
2. After a specified amount of time, ask students to pair with a neighbor to compare their responses and discuss any difficulties or challenges they may have encountered. Tell students to be prepared to report on their discussions to the class.
3. Ask all partners, or a random sampling of partners, to share their responses and challenges with the class. Engage the full class in a discussion regarding the responses, causes of the difficulties or challenges, and possible strategies to reduce these challenges in the future.

Team Quiz

1. Divide your lecture into a specific number of manageable topics or concepts.
2. Begin class by explaining that the class session will be divided into a number of segments. Assign student groups based on the number of segments in your lecture. For example, if you have divided the lecture into three segments, form groups of three. If you are presenting your topic in four segments, ask students to form groups of four.
3. Complete the first segment of your lecture. Have the first person in each group take 3 to 5 minutes to write a short-answer quiz based on the content of that segment on a separate sheet of paper so they can hand it in at the end of class. While the first group member writes questions, the other members should review their notes. After 3 to 5 minutes, the first group member should verbally quiz the others in the group. The person conducting the quiz should record how many team members were able to correctly respond to each question.
4. Continue the same process with each segment of the lecture until all group members have had an opportunity to write short-answer questions and quiz their team.
5. Collect the quiz questions from students to (a) assess students' levels of thinking, (b) check for student understanding of the concepts presented in the lecture, and (c) determine whether any of the groups' questions should be included on an exam. As an incentive for students to write thoughtful questions, you can also award extra-credit points to students whose questions actually appear on an exam. Additionally, you can use this activity to award class participation points.

Using Technology in Large Classes

Clickers, Web-Based Systems, and Social Media Sites

- Electronic clickers and other modes of web-based response systems have been found useful to check for understanding and provide instructional feedback. They can be particularly helpful in large classes.
- There are two distinct approaches to electronic response systems. In the “clicker” system, each student or student team is given a wireless, handheld response pad that sends student responses to a receiver at the instructor’s computer station via an infrared or radio signal. Student response patterns can be stored, tabulated, and graphed relatively quickly. In addition, individual (with students identified anonymously by number) or collective class responses can be displayed nearly instantaneously for immediate feedback and discussion.
- The second approach is to use a web-based system that allows students to text their responses using their cell phones. Sample sites include Poll Everywhere (polleverywhere.com), SMS Poll (www.smspoll.net), and TallySpace (www.tallyspace.com). To explore other polls see web.appstorm.net/roundups/18-awesome-survey-poll-apps.
- Use backchannel social media sites like TodaysMeet (todaysmeet.com) to encourage students to ask and respond to questions, provide examples, and offer reactions to the class. This process gives everyone an equal chance to speak and removes the pressure some students feel when speaking in front of a large group. Students can use an alias, providing anonymity and making it easier to ask a question.

Question Types

- The most appropriate questions for these systems—especially in large groups—are multiple choice, true/false, or yes/no questions. Many systems allow you to post the results as they are being tallied or immediately after. You can also track the participation rate as the responses come in, allowing you to encourage students to participate.

Sharing and Using Results

- If questions uncover common misconceptions, initial responses can be shown in a side-by-side comparison of “before and after” responses. The reasons for particular choices can become the basis for class discussion, leading to better understanding of the implications of the course material.

Exit Tickets

Exit Tickets hold students accountable right up to the end of class. They can also provide a summary activity for students, help to solidify the learning, and provide information on errors and misconceptions that students may still have. Here are some Exit Ticket activities:

Student Questions

Toward the end of the class, distribute index cards and ask students to write a question they have about the course content or a question they think would make a great test question. Instruct students to write an “I” in the top right-hand corner to indicate an inquiry card and a “T” in the corner for a test-question card. The cards then rotate throughout the room, with each student adding a checkmark if they also have this question or agree it would be good for a test. If students pass these to the center aisles, you can quickly collect them, review them after class, and start the next class with common misconceptions. You can also become aware of what concepts students think are important for assessment.

Last Word

“Ask the students to write down and hand in a brief statement of the main point of the lecture, come up with two good questions or test problems related to what you just presented, or tell you how they think you could improve the class” (Felder, 1997).

Got It

Have students write down the one thing that was crystal clear for them by the end of class. This can provide you with meaningful feedback about what worked well in your instruction and provide students with concrete evidence of their learning.

Concept Exploration: Online Quiz

At the beginning of a module, determine students' incoming knowledge of a subject or weekly topic using an ungraded quiz (offer points for completion), and explain how you will use the results. For example, students' responses can help them connect this new information to previously learned content and/or inform the selection of problems or topics for this module's discussion forums, readings, and activities.

Develop a set of quiz questions designed to measure and assess the knowledge students need to be successful in the unit. The quiz should

- be required, and students should be awarded participation points but not graded based upon responses. It is important to explain to your students that they will not be penalized if they do not know the information and that you will be using the quiz to inform your teaching in order to meet their learning needs more effectively. You may want to use the adaptive release function in your learning management system (LMS) to ensure that all students take the quiz before moving to the module content.
- be designed to provide automated feedback on correct and incorrect responses, including why the response was incorrect and, when appropriate, where to find the correct information. Also, explain to your students that the quiz was purposefully designed this way to help them learn by quickly correcting misconceptions when possible.

Instructors should post a follow-up announcement or send an email providing feedback on the quiz results and explaining how these results will inform the instructor's approach to teaching the next unit. It is important that the feedback on incorrect responses is positive, further supporting the idea that this is a learning opportunity to build knowledge for the upcoming unit.

Concept Introduction: Microlecture with Engagement Activities

To introduce complex concepts in your online course, develop a microlecture video and include a student engagement activity.

Online lectures should be chunked into smaller microlectures and structured with an easy-to-follow format.

- In the first 30 seconds, provide an overview of what students can expect to learn.
- For 5 to 6 minutes, present new material.
- During the last 30 seconds, summarize the learning objective or key points, and provide students with a set of questions they should be able to answer.

Engage Students

Use various technologies to engage students during and/or after watching the lecture.

- Use your learning management system (LMS) to add a short quiz to check for understanding.
- Create a discussion forum activity for small groups of students to ask or answer questions about what was just learned. (See an example below.)
- Conclude each microlecture with a reflection or question to bridge to the next topic or activity.
- Embed interactivity such as questions, polls, or discussions throughout the video.

Ask One, Answer One Discussion Forum

Create discussion groups of 10 to 20 students depending on your class size, and provide each group with a discussion forum for this activity. Create an additional discussion forum for the full class to use after the small group discussions. Award participation points to each student for posting one question and answering one question in their small groups.

Instructions to students:

1. After you view the microlecture, post one question about something that is unclear, that you don't understand, or that you are curious about to your group's discussion forum.
2. By (determine an appropriate due date), reply to one or more of your group members' questions.
3. All group members need to receive at least one reply to their posts. Therefore, you must choose questions that have not yet been answered.

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4. If there are questions that no one is able to answer in your group's discussion forum, have one person in your group post the question to the full class discussion forum. The full class can then try to answer the unanswered question from the other groups and earn extra credit points.

Instructors should read all questions and answers in the small group discussions to ensure accuracy and respond to unanswered questions on the full class discussion forum. It is helpful to direct students to the readings or resources that correspond to the question.

Concept Application: Choose Two Application Activity

To complete the Active Learning Cycle, assign problems and/or scenarios to provide students with an opportunity to apply the content and skills they have learned. Below is a format you can follow or adjust to ensure students apply what they have learned.

Application Scenarios: Choose Two

The purpose of this activity is to provide students with an opportunity to apply the concepts and skills they have learned. To provide additional motivation for students to address these questions or scenarios, give them a choice to respond to the two questions they find most interesting. Instructors will need to decide and then to communicate to students what they will be required to know and be expected to perform as a result of this activity. For example, are they required to be able to respond to all the questions posed in this activity for a future assessment or exam?

1. Create several (six to eight) discussion forums, each with a different problem or scenario designed to have students apply what they have learned from course readings and/or microlectures.
2. Have students reply to two discussion forums by a defined date. To encourage a wide variety of responses, use the discussion forum settings that require students to post before they can read additional posts.
3. Establish a deadline for students to post comments or questions to at least two of their peers who responded to the same discussion forum. In order to broaden students' thinking, ask them to post comments and questions to peers who had different responses than their own.
4. After the deadline for peer replies, post a reply to each group's discussion forum to ensure accuracy, clarify where needed, and/or summarize concepts.

Conclude the application activity with an announcement or email to the full class with a summary of the best responses to each question or problem as well as a reminder of your expectations for future assessment regarding whether they are responsible for knowing and being able to address all of the problems/scenarios or only the two they chose for the activity.

Concept Exploration: Online Quiz

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Develop a set of quiz questions designed to measure and assess the knowledge students need to be successful in the unit. The quiz should

- be required, and students should be awarded participation points but not graded based upon responses. It is important to explain to your students that they will not be penalized if they do not know the information and that you will be using the quiz to inform your teaching in order to meet their learning needs more effectively. You may want to use the adaptive release function in your learning management system (LMS) to ensure that all students take the quiz before moving to the module content.
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