Lecture-Interrupting Activities for Active Learning

Learning is not a spectator sport. Students do not learn much just by sitting in class listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences, apply it to their daily lives. They must make what they learn part of themselves.


1) Pauses... students are asked to

- review notes
- compare notes with another student
- write down a question about the previous section of lecture
- identify the key points made so far
- classify concepts/principles vs. examples in their notes
- answer a particular question by writing it in their notes
  - e.g., how does this topic relate to topic “X” from Monday?

2) Think-pair-share (Lyman 1981)
The instructor poses a question or problem. Individuals are given a minute to reflect on and write brief notes in response. Students pair up with someone sitting near them and share their answers verbally for two to three minutes, or they may choose to work together to create a better answer. The instructor chooses a few pairs to give summaries of their answers, or collects for grading.

3) Correct the error
The instructor creates an intentional error based on important content just discussed. Students are then asked to correct that mistake. The intentional error can contain a weak argument or inaccurate or illogical statements, conclusions, predictions, or implications.

4) Complete a sentence starter
The instructor creates a sentence stem that needs completion. In order to complete the statement accurately, students need to understand the information that was just explained, discussed or read. The answer may be convergent or divergent and may focus on a definition, a cause/effect relationship, an implication, etc

5) Compare/contrast
The instructor identifies two important parallel elements from the lesson. Students are asked to focus on similarities or differences. This strategy is most effective if the instructor has not already provided a comparison, but has simply presented the two elements separately in some depth. The items being compared or contrasted can be theories, methods, or models; examples; or aspects of case studies or events

1 Most of these activities require very little preparation and very little class time. Many experts suggest using activities every 15-20-minute during a lecture.
6) Support a statement
The instructor creates a statement for which students must locate support/justification for the statement. This might come from their immediate lecture notes, from the homework reading, or their personal experience.

7) Reorder the steps/events
The instructor presents a series of steps or events in a mixed order and students are asked to reorder the items into the correct sequence. This task can be used either as a motivational technique where students are asked to anticipate the order and make a logical guess before learning the information or as a method to allow students to review the content that they have just learned.

8) Reach a conclusion
This task requires students to make a logical inference about the implications of facts, concepts, or principles they just learned. The instructor provides students with a statement about which a conclusion can be drawn based on data, opinions, events, or solutions. The inferred conclusions may be divergent or convergent and are likely to focus on probable causes or explanations.

9) Paraphrase the idea
This task requires students to rephrase an idea using their own words. It is often helpful to have students target their paraphrase toward a specific audience, such as: a novice, a colleague, or a client. The task can be focused on a definition, theory, procedure, etc.

10) Figure/Diagram explanation
After presenting a complicated figure or diagram, ask students to describe it with a few sentences in their own words in their notes.

11) Multiple Choice/ConcepTests
Have students hold up fingers or cards to indicate the answer of a multiple-choice true/false, or yes/no type question or use the Clickers /Personal response systems where students use remote controls to answer questions. Each answer is sent to a computer, and class data can be presented for all to see.

12) Videos
Include a short video clips with a particular task for students to complete associated with the video. This could be something they should notice during the video, or the opportunity to write about or discuss the key ideas.

13) Predictions
Ask students to make predictions about the result of an experiment (real or described). Do the experiment (or explain the results) and discuss what happened.

14) Attitude survey or Ranking/Rating
The instructor provides a scale or questionnaire that measures attitudes towards a topic or asks students to rate their response to a scenario or statement. This may be used to help identify student misconceptions or bias or to highlight the complexity of issues in the discipline.
15) Mnemonics practice with a list
Have students stop and create a mnemonic device or memory strategy using the first letters of each word to make a sentence. Share these for 1-2 minutes.

16) Exam questions (debriefing and practice)
Use old exam questions to connect class with exams, to give them practice and to let students know what to expect. Alternately, have students write exam questions and turn them in.

17) Memory matrix
Distribute a matrix with row and column headings representing categorizing variables for information covered in lecture. Have student fill in the relevant cell information. For example:

<table>
<thead>
<tr>
<th>Structure</th>
<th>Functions</th>
<th>Enzymes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esophagus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stomach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pancreas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18) One Minute Paper/Muddiest Point (Wilson 1986)
Give students one minute to respond on a notecard to a writing prompt such as What was the most important concept? What’s not clear? How does today’s topic connect with _________? or What was the most confusing or “muddiest” part of the material? Collect these and look for clarification opportunities after a class break (for a long class) or in the next class (for a shorter one)

19) Presence Diaries (Jacob & Elser, 1997)
At the beginning of class and/or at a midway point, have students rate their 1) mental, 2) physical, and 3) emotional states in terms of readiness to learn. This helps students identify the outside influences of their learning and reminds them to responsibility for learning.

21) Roundtable
Students are asked to brainstorm in groups of 3-4 in response to a prompt. A sheet of paper or index card is passed and each person adds an idea to the list, saying out loud so the group can hear, before passing to the next person. Can be used to generate examples, to ask students to recall information, or to identify what they know about a topic before it is introduced.

21) Wake Up Call (Eitington, 1996) –(be certain you’ve built a safe environment for this strategy)
Give each student a numbered slip before class. Set an electric timer to buzz at 5 or 10 minute intervals. When the timer goes off, call a random number. The student holding that number must 1) ask a question, 2) make a comment, or 3) summarize the last few minutes of content.
Apply It!

Pick at least 2 of the strategies above to include or invent your own. How will you use them in an upcoming lecture?

What will you look for to see if these activities are working?

References and Further Reading

Websites

The “change-up” in Lecture  
Attention span and Lecture  
[http://www.learningandteaching.info/teaching/lecture.htm](http://www.learningandteaching.info/teaching/lecture.htm)
“Quick Think” strategies (including examples)  
Video and other online resources about active learning techniques  
The Interactive Lecture  
[http://serc.carleton.edu/introgeo/interactive/whatis.html](http://serc.carleton.edu/introgeo/interactive/whatis.html)

Other Resources

Why Break Up A Lecture?

1) Attention wanes at 8-15 minutes.
2) Students take ownership for their learning and realize that they can and must do things with the material to learn it.
3) Interaction with others builds community in the classroom
4) Activities can provide both students and instructors information about student learning
5) Student's own in-class behavior serves as the basis for future recall (takes advantage of the self-reference effect in memory.)
6) Recall for passive listening is poor
7) Allows for reflection and development of metacognition.