

Questions by Cognitive Level

In order to ensure your questions are scaffolded from lower to higher cognitive levels, it is useful to identify the level of each question or prompt you plan to ask. Use this table, from Linda Nilson, to identify question types for each cognitive level.

Cognitive Level	Questions
Knowledge	<ul style="list-style-type: none"> Who did _____ to _____? What did you notice about _____? What do you recall about _____? What does the term _____ mean? When did _____ take place? Where did it take place? How does the process work? (Describe it.)
Comprehension	<ul style="list-style-type: none"> In your own words, what does the term _____ mean? How would you explain _____ in nontechnical terms? Can you show us what you mean? What do you think the author/researcher is saying?
Application	<ul style="list-style-type: none"> What would be an example of _____? How would you solve this problem? What approach would you use? How would you apply _____ in this situation?
Analysis	<ul style="list-style-type: none"> How are _____ and _____ alike? How are they different? How is _____ related to _____? What are the different parts of _____? What type of _____ is this? How would you classify it? What evidence does the author/researcher offer? How does the author/researcher structure the argument? What assumptions are behind the argument? What inferences can you draw about _____?
Synthesis	<ul style="list-style-type: none"> What conclusions can you come to about _____? What generalizations can you make about _____? How would you design (structure, organize) a _____? How would you adapt (change) the design (plan) for _____? How can you resolve the differences (paradox, apparent conflict)? What new model could accommodate these disparate findings?
Evaluation	<ul style="list-style-type: none"> What would you choose, and why? What are the relevant data, and why? Why do you approve or disapprove? Why do you think the conclusions are valid or invalid? What is your position (opinion), and how can you justify it? How would you rank (rate, prioritize) the _____? How would you judge (evaluate) _____?

Source

From *Teaching at Its Best: A Research-Based Resource for College Instructors* (3rd ed., p. 139), by L. B. Nilson, 2010, Jossey-Bass. Reproduced by permission.

Use Wait Time in Synchronous Sessions

After asking a question, it is important to give students time to reflect and prepare a response. The number of hands raised, after waiting 3 to 5 seconds, should also be used as a form of feedback regarding the level of student understanding. Fewer hands raised may indicate that students are either confused about what you are asking, or they may feel they are not able to answer the question correctly (Dailey, 2014).

Research has found that instructors typically wait less than 1 second between asking a question and calling on a student to respond. Under these conditions, student answers are generally short, and fewer students volunteer to answer. Pausing 5 to 7 seconds before calling on a student results in an increase in the length of student responses, the number of students willing to give a response, and student-to-student interactions (Dailey, 2014). Also, let students know that you are pausing because you care about their answers and want them to have time to consider their responses.

Source

Dailey, R. (2014, April 21). *The sound of silence: The value of quiet contemplation in the classroom*. Faculty Focus. <http://www.facultyfocus.com/articles/teaching-and-learning/sound-silence-value-quiet-contemplation-classroom/>

Establishing Expectations for Cold-Calling

Student motivation is a key in helping students achieve their learning goals. To foster motivation, it's helpful to encourage and support students to take ownership of the course content, engage with the course material, and participate in discussions and forums. You can help students take more ownership of their learning by calling on them for answers, feedback, or responses during synchronous online discussions; just be sure to let them know up front that you will be calling on students without hands raised and why you are using the practice.

Gathering Feedback on the Lesson

In addition to helping support student success, cold-calling is an effective way to gather feedback from the class in real time so that you know if you are teaching the current topic effectively or if students would benefit from more explanation or different examples. Feedback can be gathered during lectures or discussions by asking variations of questions such as:

- “Why do you think this is true?”
- “What is an example of this in . . . ?”
- “What is your take on this?”
- “How do you think this applies to . . . ?”

Why Cold-Call?

It is important to call on students who did not volunteer to participate because the students who typically volunteer are the ones who understand the material or assume they have the correct answer. The students who actively engage may lead you to assume that all students are just as engaged and have a solid understanding of the content. In reality, there may be other students who don't volunteer because they are not confident in their understanding of the material. These are the students we need feedback from so that we can modify our approach to the topic and ensure that students comprehend the material.

Establishing Expectations for Cold-Calling

Cold-calling students who have not volunteered to participate will not be effective in fostering motivation or success if students aren't prepared to rise to the challenge. It is therefore important to establish expectations for cold-calling at the start of the course.

Within the class participation section of your syllabus, include your expectations of how often and in what ways you expect students to participate in synchronous class discussions or lectures. Make it clear that everyone should expect to be called upon to engage whether or not they have volunteered to do so. This sets the expectation for the remainder of the course and helps to engage students who may generally shy away from participating.

Sample Participation Syllabus Statement

Below is a sample statement that can be included in your syllabus to let students know that they will be called upon to participate in the class discussions and lectures.

Participating in synchronous class discussions and mini lectures is an important part of learning in this course. I encourage you to cue me when you would like to respond to a question or prompt, or when you have a question. I also expect each of you to be prepared for our synchronous sessions and ready to respond to questions or prompts even if you don't volunteer to do so. Because I will ensure that everyone is called upon over the course of the semester, you will all receive a grade for the quality of your participation, which will be equivalent to 5% of your overall course grade. High-quality participation means that you are prepared for the synchronous sessions, not that you always have the correct response. Hearing responses from everyone in the class allows us to gain new perspectives and consider questions that we may not have thought of, and at times helps me understand that there is confusion and offers me the opportunity to respond to that confusion.

It is important to review this expectation in the first class meeting. Cold-calling can be a challenge for students if they are not prepared to answer the question or do not expect to be called upon.

Keeping Track of Participation

Once this expectation is set and students know that they may be called upon to participate in the lesson, it can be helpful to keep a roster of student names on hand so that you can mark off those you have called on and choose students who have not yet participated. You may also try having index cards with a student's name written on each so that once you call on a student, you can make a quick note about their response and then place their card in a separate pile. This helps you keep track of students you have and have not called on.

Use Prompts to Help Student Clarify Their Thinking

In discussion forums or live sessions, you can invite students to clarify, expand, and support their thinking by strategically asking follow-up questions. These prompting questions can encourage students to engage in critical thinking and lead them to a deeper understanding of the content.

The following chart identifies prompts that can be used based on how students reply to your questions. The prompting approach can be used in either live sessions or asynchronous chats.

Student Response & Your Goal	Prompt
<p><i>Student Response:</i> No students respond to your question.</p> <p><i>Your Goal:</i> Elicit responses by supporting and guiding students to share an answer.</p>	<p>This three-step approach is most often used in live sessions.</p> <ol style="list-style-type: none"> 1. Repeat the question. <p>Provides students with time to think as well as the opportunity to hear the question again.</p> <ol style="list-style-type: none"> 2. Rephrase the question. <p>Consider using different language or emphasizing different words in the question.</p> <ol style="list-style-type: none"> 3. Reduce the question. <p>Break the question into parts or ask a more direct version of the question.</p>
<p><i>Student Response:</i> A student provides the correct answer.</p> <p><i>Your Goal:</i> Recognize the response as correct. This gives other students insight into the type of answers you're looking for and also cues them to focus on the correct content.</p>	<p>Clarify the right answer and praise the thinking behind the answer.</p> <p>"Yes, you're on the right track because . . ."</p> <p>Or, "You've applied the process we learned earlier in the module, nice work . . ."</p>
<p><i>Student Response:</i> A student provides the correct answer, but there are other possible answers.</p> <p><i>Your Goal:</i> Encourage another student to extend or add to the answer.</p>	<p>Clarify the right answer and encourage another student to add to the conversation.</p> <p>"You have uncovered an important aspect of the reading. Could someone add to this thinking?"</p>
<p><i>Student Response:</i> The student's answer is unclear.</p> <p><i>Your Goal:</i> Coax more out of the student and help them uncover the assumptions being made.</p>	<p>Rephrase the answer and ask if that was what the student meant: "So what I heard you say was you think the author was not being clear in his/her description? Is that correct?"</p> <p>Ask them to consider a different approach to help them think more deeply. "How might you modify your answer if you took into account . . .?"</p>
<p><i>Student Response:</i> The student's answer is incorrect.</p> <p><i>Your Goal:</i> Lead the student to uncover their error.</p>	<p>"Yes, and if you come to that conclusion, don't you also have to assume . . .?"</p> <p>"I'm not sure I'm following your thinking here. Could you please clarify your thoughts?"</p>

Use Online Polls, Surveys, and Quizzes

Asking students to respond to a quick online poll, survey, or quiz to check for understanding provides instructors with a clear idea of what students have learned and where they need additional supports.

Use Online Polls to Check for Student Assessment of Their Understanding

Asking students to respond to a quick online poll to check for understanding is similar to asking for a show of hands in a classroom. This type of feedback provides a general sense of whether the group as a whole thinks they understand the new material. Asking students to respond to a poll after engaging with content that could be challenging or confusing can help you address students' concerns in a timely manner; therefore, it is important to communicate how you will use their responses to the poll and that you will not be grading the responses.

Online polls typically include a single multiple-choice question. Below are examples of different poll questions for different situations.

- A poll question following a video lecture: How confident are you that you understand the concepts [you may choose to list separate concepts in separate questions] discussed in the video lecture? (responses on a scale of 1 to 5, where 1 = least and 5 = most)
- A poll about assigned reading: How well do you think you understand the significance of the results presented in the article? (responses on a scale of 1 to 5, where 1 = least and 5 = most)
- A poll about assignment instructions: How confident are you that you understand what is expected of you for this assignment? (responses on a scale of 1 to 5, where 1 = least and 5 = most)

Although the responses to these questions indicate only how well students *think* they understand, not what they actually understand, it is still a good method to obtain feedback that lets you know if you need to follow up with additional instruction for the entire class or offer additional help to the students who have indicated they are struggling with the material.

Use Online Surveys to Check for Understanding of Foundational Knowledge

While online polls help determine what students think they understand, surveys can identify precisely what they do and do not understand. You can use tools such as SurveyMonkey, Qualtrics, or Google Forms to create surveys with multiple choice, true/false, or essay questions. Some learning management systems provide a setting so that online quizzes can be taken as anonymous surveys.

Since surveys can be taken anonymously, they also provide a risk-free way for students to engage with questions aligned to what they are learning. You may incentivize students to complete anonymous surveys by letting them know that the questions are similar to what will appear on an upcoming test and that you will use the responses to determine what you might need to reteach or where you might need to provide additional resources.

After students respond to the survey questionnaire, it is important to share the correct responses. If there are questions where a third or more of your students struggled, post a written and/or video explanation of the correct response and include resources for students to find pertinent information. Also offer a virtual help session for anyone wanting additional support. This type of feedback is also an indication that you should go back and determine if your instructional methods or materials could be improved.

Use Online Quizzes to Check for Student Understanding of Complex Material

The quiz tools in your learning management system (LMS) can be used to create quizzes with different types of questions (e.g., true/false, multiple choice, open text, and essay) and offer instant feedback to students, so they understand why their responses are correct or incorrect and where to find pertinent information in the course materials.

Provide quiz instructions that explain the purpose of the quiz and encourage students to answer questions based solely on what they understood from the video lecture(s) and/or selected reading(s).

For example:

The purpose of this quiz is to let me know how effective my online lecture was at explaining the complex process of cellular respiration. Your responses to the quiz questions will let me know if I need to provide any additional support or resources. Please do not use notes or refer back to the materials when you take this quiz. You will receive 5 participation points simply for taking the quiz, not for the number of answers you get right. Thank you for your help!

One-Minute Thread

The One-Minute Thread is the online version of the One-Minute Paper. While this teaching practice is a helpful technique to check for student understanding in a fully online course, the One-Minute Thread can also be used in hybrid or face-to-face courses that use an online platform for class materials and discussions. The One-Minute Thread offers students more time to formulate their responses, which may be helpful when students are asked to grapple with complex questions or challenging material, or when they simply benefit from extra processing time.

Instructions

1. Use the questions below for this activity in relation to a module or unit.
 - a. What was most clear, helpful, or meaningful in this module or unit?
 - b. What concepts or ideas from this module or unit are still unclear?
 - c. What additional comments, insights, or questions do you have about this module's or unit's concepts or ideas?
2. You may include all three questions on one discussion forum. However, creating a separate forum **for each question** will make it easier to identify patterns or themes in each category.
3. Provide students with instructions that encourage short, concise responses to each question. Consider offering a point or two for completion as well as an example post from a previous class.

Below are some example instructions:

In order for me to determine how well you understand the content in this module, please post a response to the question in each of the three discussion forums. Your response should be brief, and it should not take more than a few minutes to write. For your contribution to our shared understanding, you will earn 1 point for posting to each discussion board prompt. Below are several examples from last semester:

- **Clear** – *I now understand both the basic structure of the cell and what keeps a cell alive.*
- **Unclear** – *I don't get the four phases of mitosis/cell division and if the phases are different for different kinds of cells.*
- **Comment** – *Please show more animations and pictures . . . they help a lot.*

Once all students have posted their responses, identify patterns regarding what is clear and unclear to students. Share a summative post that addresses problem areas by providing necessary clarifications and useful resources. Describe any modifications you will make to course materials or the next module based on the students' comments.

Source

From "Evaluating and Improving Your Online Teaching Effectiveness," by K. Kelly, in S. Hirtz, D. G. Harper, & S. Mackenzie (Eds.), *Education for a Digital World: Advice, Guidelines, and Effective Practice From Around the Globe* (pp. 365–377), BCcampus and Commonwealth of Learning, 2008 (<http://oasis.col.org/handle/11599/52>). CC BY-SA 3.0. Reproduced with permission.

Including a Question & Answer Forum

Regardless of how diligently we develop assignments, carefully construct mini lectures, or include details in our syllabus, students will have questions. This is a good sign, as students who take the time to form and ask questions are generally engaged with the course and invested in their learning. In fact, it is a good practice to thank students for their questions.

To efficiently respond to questions and help students find the answers they need, it can be helpful to have a Question & Answer (Q & A) forum where students can post questions. The forum can save you from responding to the same question several times and help students who might be reticent to ask, even though they had the same question. It also gives students the opportunity to serve as support for other students when they are able to respond to a classmate's question.

Responding in the Q & A Forum

For the Q & A forum to be successful, be sure to set the forum notifications to ping you or send you an email any time a student posts a question so that you can reply promptly. If the forum or your LMS doesn't provide the notifications option, set a reminder for yourself to check the forum at least once each day of the week. You may even include in the syllabus the turnaround time that students can expect for a response to something posted in the Q & A forum.

Q & A Forum as Feedback

As you review student questions in the forum, it can be helpful to keep a running list of the topics or assignments that students commonly seem confused about. This way you can adjust those lessons or assignments for future classes.

In your current class, if you are finding common areas of confusion or misunderstandings, there are a number of things that you can do to support your students.

- Provide additional resources
- Create an additional microlecture explaining the content in a new way
- Design an assignment to ensure students have grasped important concepts before moving on to the next module

You can also scan student interactions in discussion forums to see if there are assignments or assignment directions that students are struggling to understand.

Creating a Q & A Video

If there is a particular question that you think is important to clarify for the entire class, or a specific topic that many students seem to have questions about, you can respond by creating a video and posting it for the entire class. The video or additional microlecture can serve as a response to the question and a way to demonstrate to your students that you are engaged in the class content and invested in their ability to master course content.

The box below demonstrates the points that you may include in your video response.

1. Acknowledge the student question(s).
2. Recognize why the specific content, topic, or assignment may be confusing.
3. Identify content from an earlier module that, when revisited, may help students better understand the current content.
4. Briefly explain the foundational concepts from the earlier module.
5. Transition the foundational concepts to the current module's content.
6. Explain the current content in a new way or through a different approach.
7. Offer a step-by-step explanation for solving a problem.
8. Reiterate to students that you welcome their questions in the forum and they should expect this type of clarification when you see that many students are struggling with the same issue or concept.
9. Assign a short quiz or reflection assignment to ensure that students understand the content.

Sample Q & A Video

The box below is the dialogue from a sample Q & A video. In this scenario, the instructor of a writing course asked students to identify the point of view within the assigned memoir. The assignment required students to provide evidence to support their responses. It seemed to be a straightforward assignment, but several students had questions such as, "What if the author doesn't have a point of view?" or "What if the point of view shifts?" These questions helped the instructor realize that students hadn't yet developed a strong understanding of or ability to identify an author's point of view.

1. I have received several questions about the point of view within the memoir. Some of the questions asked how to identify the point of view, or what to do if the author didn't use a point of view.
2. I understand that identifying point of view might be difficult within a memoir because, until now, we have only worked on identifying a point of view when reading fiction.
3. I think it would be helpful to review what the point of view and central themes are.
4. The point of view in any writing is the form of narration that the author uses. In literature, point of view can be first person, where the narrator uses "I, me, my", or second person, where the author uses "you, your," or third person, where the author uses "she, he, they, her, his, their."
5. The important thing to note here is that memoir is personal experience, so the narrator really only has the first- or second-person point of view to choose from. Fiction often uses third person because the narrator presumably knows the thoughts, feelings, or intentions of others, and this is not the case in life nor in memoir.
6. So, as we study memoir writing in this class, we have to keep in mind the importance of having a reliable narrator. In a conversation with someone, we won't say, "She felt alone. She chased her friend down and begged for forgiveness. It was the only consolation she had on a such a rainy night." Instead, we would say something more along the lines of, "I saw her chase her friend down the street and say she is sorry and that she didn't want to lose the friendship. It all looked more dramatic because it was raining that night. I don't know if she meant it or if she just wanted a friend because she felt alone." Memoir works the same way. The narrator can't know what other people are thinking or feeling, so events are written in first or second person and describe what is experienced or witnessed.
7. So, in the example I just gave, what is the point of view? The narrator used the words "I don't know if she meant it" and "I saw her." Although the words "she" and "her" are used, the narrator is describing a personal point of view using "I," which is first person.
8. I hope this clarifies the topic. If you have any questions, please post to the Q-&-A forum. I also have office hours on Thursday from 1 to 2:30 p.m. Please feel free to drop in via chat or video for some additional help.
9. I have created a short quiz just to let me know how everyone is doing with this content. Please complete the quiz before 5 p.m. tomorrow.
10. Thank you.

The follow-up can be a short, five-question quiz created in the LMS, asking questions such as which pronouns correspond with which point of view, and why point of view differs in fiction and in memoir. This will help the instructor know whether students need further instruction before moving on to the next module.

Source

Adapted from Small Teaching Online: Applying Learning Science in Online Classes (pp. 38–41), by F. Darby & J. M. Lang, 2019, Jossey-Bass.

Posting Frequently Asked Questions

With each course that you teach, you may notice several questions that arise frequently. Collecting these will help you determine if any class sessions or assignments may benefit from an adjustment or redesign. At the same time, some questions may not relate to things that you can redesign. They may be more general questions or topics that are of particular concern to students. In such cases, it is helpful to collect these questions and create a Frequently Asked Questions (FAQ) document that you post for the class. This will save you time as you can simply post the document to the FAQ section each time you teach the course.

The table below presents a sample FAQ document with responses.

LMS	Quizzes	Assignments
<p>What if I can't log into the LMS? Contact our Tech Support department at 800-234-5678. Please note this number so you have it available without going into the course.</p>	<p>What purpose do the quizzes serve? The quiz feature in the modules allows you to revisit the most important concepts. This process of having to recall information strengthens your ability to recall this information later on.</p>	<p>What are the consequences of late submissions? As stated in the syllabus, there is an automatic deduction of 5 points from the assignment grade. If you are anticipating that you will have difficulty meeting a due date, please contact me so we can discuss options.</p>
<p>What if I don't have internet access so I can't get into the LMS? I recommend that you go to a space you can use that has shared internet access. If this is an ongoing problem, please contact me so we can discuss your options.</p>	<p>Can I take a quiz after the Sunday night deadline? No, there are no late submissions for quizzes because this information is used to inform our work in the next module.</p>	<p>Are you available to help with assignments before they are due? Yes, that is a great reason to log into my virtual office hours. If that time is not convenient, email me and we will schedule another time.</p>
<p>What if my assignment isn't posting to the LMS and it is due? You can email the assignment to me while you contact the Tech Support department at 800-234-5678 and have the issue resolved.</p>	<p>What if I miss a quiz? You are allotted one dropped quiz. You can decide which quiz to drop, either because you missed one or didn't score as high as you would have liked. You will receive the full 10 points for the quiz you choose to drop.</p>	<p>What differentiates an A paper from a B paper? Refer to the rubric for more detailed information, but generally an A is given on an essay when it is well organized, the thesis is clearly stated, all references are appropriately cited, and the topic is carefully chosen and researched.</p>

Sources

Bowen, J., & Watson, E. (2012). *Teaching naked techniques: A practical guide to designing better classes*. Jossey-Bass.

Darby, F., & Lang, J. M. (2019). *Small teaching online: Applying learning science in online classes*. Jossey-Bass.