

Assessment Planning Guide

Getting Started

The process of developing assessments should start as soon as you've identified your learning objectives. Once you've identified what you want the learners to be able to know and do, you need to think of how you'll measure success. To measure learning, you need to establish a baseline with a pre-test and then measure growth with a post-test. Ask yourself what students will need to do to demonstrate they have learned the content.

Next, you'll need to determine the number of items you need for each objective. A good rule of thumb is to have at least two assessment items per objective. You'll use at least half of the items in the pre-test and all of the items in the post test. This allows you greater insight into the students' level of mastery.

To get a clear picture of student achievement, ask questions at different levels of rigor. While you plan the rigor of instruction with Bloom's Taxonomy, for assessments, it's more appropriate to use Webb's Depth of Knowledge (DOK).

Plan how many questions of each DOK to ask in the pre- and post-tests. The pre-test should generally have lower-DOK items, while the post-test should contain all items. In both tests, arrange items from lowest to highest DOK.

Item Count Guidance

The number of questions needed will depend largely on the length of the module and the number of objectives. Modules between 10 and 20 minutes long should have no more than 2-3 objectives. Assessments should have 2-3 items per LO. For many modules, five pre- and post-questions should be sufficient, though post-tests could go up to 10 items.

Example:

Learning Objectives	Pre-Test	Post-Test	DOK1	DOK2	DOK3
Define and differentiate between savings, checking, and credit accounts.	1	2	1	1	
Categorize and differentiate between wants, needs, savings, and debt payment when creating a monthly budget.	1	2		1	1
Evaluate different types of savings accounts (e.g., high-yield savings, certificates of deposit, and regular savings accounts) and select the most appropriate account type for different situations.	1	2	1		1

Bloom's Taxonomy vs. Webb's Depth of Knowledge

Bloom's Taxonomy is a framework designed to assist in instruction; each of the levels builds on the previous level. For example, to get to the level of "understanding," students must first be able to remember. And to apply knowledge, students must first understand it, and so on. Bloom's Taxonomy is most appropriately used when planning instruction and measuring a lesson's rigor.

Webb's Depth of Knowledge is a framework for identifying the rigor of assessments. Where Bloom's Taxonomy shows the cognitive level students must demonstrate to prove that learning occurred, DOK focuses on the *context* in which students demonstrate learning. At the lowest level (DOK1), students are simply recalling information by identifying or defining an item. Moving up through the levels, students then apply their knowledge (DOK2). For DOK2 level questions, students use their ability to identify or define an item to make a choice. Next in DOK3, students are asked to apply their knowledge in real-world scenarios and evaluate a situation and make a judgement. Finally, DOK4 requires students to respond with knowledge and judgement to a prompt in an essay, solving a mathematical problem, or creating a solution to a problem. These items cannot be included in traditional multiple choice style assessments and require instructor grading.

How to Write DOK1 Multiple Choice Items (Recall and Reproduction)

1. Use straightforward questions that will be familiar to students.
2. Use simple content that focuses on one dimension or few components.

How to Write DOK2 Multiple Choice Items (Simple Skills and Concepts)

1. Use simple content that focuses on one dimension or a few components.
2. Include simple calculations where the equation is given for math-based assessments.

How to Write DOK3 Multiple Choice Items (Planning and Complex Reasoning)

1. Match the content with DOK level (1, 2, or 3)
2. Use novelty, i.e. create scenarios that would be new to students (not repeating context from the lesson). See screenshot to the right.
3. Focus on content that is complex.
4. Use an extended prompt.
5. Provide stimulus material.

Assessment Writing Guidance

Types of questions to use:

1. When writing multiple choice or multiple select, use detailed scenarios before the stem where possible to create real-world applicability. Write concrete stems that are clear and concise. Ensure that all alternatives are of similar length and construction. Avoid repetition; put wording into the stem, not distractors. All distractors should be plausible. Avoid trick questions or anything that relies on overly careful reading. We want to evaluate learner knowledge and skill, not their ability to decode convoluted writing.

Types of questions to avoid:

1. True/false—these questions do not produce good data, as there is a 50/50 chance of a right or wrong answer.
2. Short answer and essay questions can evaluate DOK 4 but are not able to be automatically graded.

3. DOK 4 is not assessed in multiple choice style assessments. DOK 4 requires extended thinking and creating in a real-world situation.

Question Stem Guidance¹

1. Write the stem in clear, concise phrases.
2. Write at the lowest grade level's readability. (Ex: for a course used in 6th-8th grade, the readability should be no higher than 6th grade and preferably slightly lower.)
3. Do not include hints to the answer in the stem (or in other stems before or after).
4. Frame stems with positive phrasing, i.e., avoid questions like "which of the following does NOT affect cost."
5. Capitalize any qualifiers, such as LIKELY, BEST, LEAST, or MOST. Also emphasize any detail that can offer clarification, such as "Which of the following factors is LEAST LIKELY to result in delivery delays?" or "The use of smart cranes enables transportation companies to do all of the following EXCEPT."
6. Put the blank at the end of the stem for fill-in-the-blanks.
7. Plan out the percentage of DOK 1, 2, and 3 before beginning to write the assessment

Question Bank Guidance

1. Write 3 versions for each question.
2. Keep each question pool at the same DOK.
3. Questions should get more challenging as you go through the test, so DOK 1 questions should appear first, followed by DOK 2, then DOK3.

Distractor Writing Guidance

1. Distractors should be parallel in grammar and length.
2. Use four answer choices.
3. All answer choices must be plausible.
4. Avoid "all of the above" or "none of the above."
5. Do not contradict the premise of the stem with a distractor. (For example, if the stem is "How does temperature affect the growth rate of plants?" don't use a distractor that says "temperature does not affect the growth rate of plants.")
6. Put answers in logical order, e.g. in increasing number or chronological order.
7. Avoid any clues among distractors.
8. Ensure that there is only one correct response, unless using multiselect.
9. Randomize correct answers. (As, Bs, Cs, and Ds should be equally represented; use an online randomizer as needed.)

Feedback Guidance

1. Feedback should be given as quickly as possible.
2. Feedback should be specific and detailed, explaining why an answer was correct or incorrect and telling students where to look in the course to review the information.

¹ adapted from:

<http://thinkingschoolsacademy.org/wp-content/uploads/2014/03/Creating-Tests-for-Higher-Order-Thinking.pdf>

Overall Best Practices

Do:

1. Write relevant, novel scenarios.
2. Use complete sentences.
3. Give clear feedback; offer suggestions for further review when possible.
4. Use active voice.
5. Include feedback with section review recommendations.

Avoid:

1. All of the above, none of the above
2. Combinations of correct answers (ex: a and c are correct). Use multiple select instead of this sort of combination or write out combinations.
For example: Which are good stress reduction techniques?
 - a. deep breathing and social media
 - b. deep breathing and meditation**
 - c. meditation and video games
 - d. social media and video games
3. Trick questions
4. Clues in distractors
5. Cultural or gender bias
6. Negative stems (ex: Which of the following is not...)
7. Questions that ask for the "best" answer (ex: Which of the following is the *best* example of xyz.)
8. Avoid distractors that contradict the stem. (E.g., How does compound interest affect debt? Compound interest does not affect debt.)
9. Avoid "all of the above" or "none of the above."
10. Avoid any clues among distractors.