

Strategies for Writing Effective Questions for Objective Exams

Definitions: Part of a multiple-choice question

Stem:	Initial part of the question
Response options:	Choices for answers provided after the question
Distracters:	Incorrect response options
Key:	Response option that is the correct answer

General Guidelines for Question Construction

1. Write questions to measure a particular learning outcome. Focus on important outcomes (not trivial facts). If possible, state the stem as a direct question rather than an incomplete statement.
2. The stem should pose a single, clearly described problem or question.
3. Use simple, clear language.
4. Put as much of the wording of the question in the stem rather than in the response options. Include any word(s) that would otherwise be repeated in the response options.
5. Avoid using negatives in either the stem or the responses. Negations are more difficult to understand and easy to overlook when reading a stem quickly. If you must use a negation or use other words that are critical to understanding the question properly, ***draw students' attention to negations and key terms by printing these words in ALL CAPS or in bold font.***
6. Make sure that ***one and only one answer is correct*** (or clearly the best answer). Response options should be ***mutually exclusive***. Avoid having the same responses appear in more than one option.
7. Write distracters that are plausible answers to the question (but clearly wrong to students who know the material). Avoid questions in which the correct response differs from other alternatives based on subtle or trivial distinctions.
8. Good distracters state a common misconception or endorse a common error.
9. Good distracters use the technical language of the field in appropriate ways.
10. Good distracters make statements that are factually correct (about the discipline material) but are irrelevant to the question posed.
11. Good distracters use language that is grammatically correct and consistent with the grammar used in the correct answer. Incorrect answers should not complete the stem in grammatically incorrect ways.
12. Most questions include 4 response options. There is some evidence that only 3 response options can be provided without significant increases in successful guessing. More than 5 response options can be confusing (and the distracters are unlikely to be plausible).

Tips to avoid signaling the correct answer to “test savvy” but uniformed students

1. Response options should be grammatically consistent with the stem. An option that produces a non-grammatical sentence is clearly a wrong answer.
2. All response options should use the terminology of course content. Use relevant discipline-specific terminology in distracters. Don’t reward students for simply recognizing new terminology they hear in class or read in their text.
3. Has the question been answered in a previous question? If a test includes multiple questions on a given topic, the answer to one question might be embedded in the stem of another question.
4. Pay attention to grammatical and other structural aspects of the questions that can serve as cues to the correct answer. Consistencies between language characteristics of the stem and the alternatives help test savvy students guess correct answers or eliminate incorrect alternatives (use of singular or plural, verb tenses). Avoid rewarding students for simply knowing these rules.

Common guessing strategies:

- a. Pick the longest (or shortest) answer.
Solution: Make all answers the same length or make the longest/shortest answer the wrong answer as often as it is the right answer.
- b. Pick option “B” (or any option that the test seems to favor)
Solution: Randomize the correct responses. Check your test and make sure that the correct answer appears as each response option equally often.
- c. Don’t pick the simplest answer; pick the answer that has the most detail.
Solution: Make sure that the simple answers and the most detailed answers are the correct answer as often as they are not.
- d. Pick an answer that uses specialized vocabulary from the course content.
Solution: Use technical content vocabulary in wrong answers as well as in correct answers.
5. Avoid verbal clues that guide students to the correct answer or allow them to eliminate one or more incorrect answers.

Common “verbal clues” that a response option is the correct answer:

- a. Similar wording or repetition of key words present in the stem
- b. Paraphrases of elements in the stem
- c. Only one response option uses language that is similar to language used in the text or by the instructor
- d. Answer included more detailed information than other answers
- e. Answer includes qualifiers (*sometimes, may, usually*); these qualifiers are typically used with true statements
- f. Longest answer or shortest answer (try to make all responses similar in length)

Common “verbal Clues” that a response option is not the correct answer:

- a. Absolute terms in the answer options (*always, never, all, none, only*). If these words appear in the incorrect responses, make sure that they appear equally often in the correct answers.
- b. Two or more response options have the same meaning. If only one answer can be selected, then neither of these responses can possibly be the correct answer.
- c. Responses that produce a non-grammatical sentence (e.g., stem asks for a plural noun and response is a singular noun).

Avoid writing exam questions that operate as thought puzzles. Exam questions should test content knowledge and thinking skills *about the content*, not general logic skills. Exams should test skill with logic or puzzle-solving only if these learning outcomes are among the intended outcomes for the course.

1. Present response options in a logical order when this is possible (small to large values; early to later dates). Response options to other questions can be randomized but options that have an inherent order should be presented in a logical sequence.
2. Avoid response options that represent logical combinations of other options (A and B: all except C).
3. Avoid using negations. Negations require more cognitive effort to understand. For example, the statement *A felony is not a minor criminal offense* is more difficult to understand than the statement *A felony is a serious criminal offense*.
4. *All of the above* and *None of the above* should be used as response options only if they are used equally often in questions as correct and incorrect options.

**Multiple Choice Questions that Assess Critical Thinking and Other Higher-Order Learning Outcomes:
Moving Beyond Fact Recognition**

1. Describe a practical scenario or real-world situation. Ask students to select the correct theoretical interpretation or select an appropriate solution to a problem posed by the scenario/situation.
2. Present a description of a research study. Ask students to identify methodological components of the study or predict the outcome of the study suggested by a specific theory or model.
3. Present a figure or table of research findings. Ask students to interpret the statistical data.
4. Present a summary of research findings. Ask students to interpret the findings in ways that are consistent with one of several competing explanations in the discipline.
5. Ask students to determine which example correctly applies a technical term (instead of simply recognizing the correct definition of the term).
6. Ask students to identify an example that illustrates a concept or principle.
7. Ask students to select the consequence of an action or manipulation that is most likely to be predicted by a specific theory.